

# CHARLOTTE GATEWAY STATION

CONNECTING YOU TO WHERE LIFE TAKES YOU



## Multimodal Station Area Plan

Final Report

July 2017

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## 1 INTRODUCTION

The Charlotte Gateway Station (CGS) will be a multimodal transportation facility in Uptown Charlotte at the intersection of West Trade and Graham Streets. The future CGS will dramatically change this portion of Uptown. The multimodal station will provide both long-distance travelers and daily commuters with greater accessibility to regional connections as well as to Charlotte's thriving employment, entertainment and cultural centers. In preparation for station development, this study is intended to guide development for the station and the surrounding area.

This document describes the Multimodal Station Area Plan (MSAP) for CGS. The plan includes the following:

- A summary of the need for an MSAP (**The Opportunity**);
- A description of the site location and requirements (**The Site**);
- Overall station area development themes and specific design principles (**The Vision**);
- Conceptual plans and illustrations for the proposed development concept (**The Concept Plan**); and
- A phased implementation strategy based on projected costs and funding sources (**Phasing Strategy and Funding Plan**).

This document complements the earlier "Phase 1" MSAP report which included a brief review of previous studies, a summarization of the transportation program requirements, identification of station precedents, and the results of a collaborative visioning workshop and associated web-based survey.

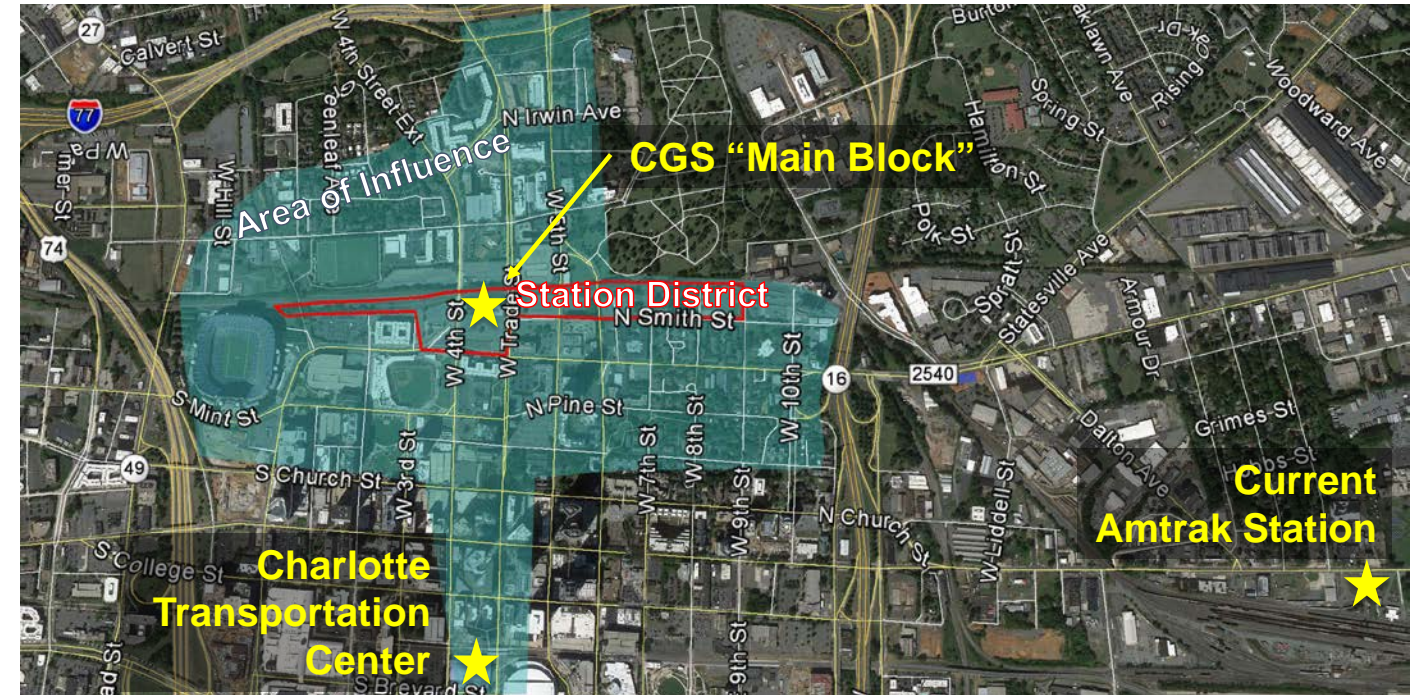
## 2 THE OPPORTUNITY

### 2.1 Planning Context

The North Carolina Department of Transportation (NCDOT), in partnership with the City of Charlotte, is developing this transportation analysis and conceptual vision for the future CGS. This planning effort is intended to review and evaluate past plans, identify current priorities, and reassess transportation needs through the lens of a phased approach to implementation. In addition, this process includes a comprehensive vision for the CGS as a multimodal hub and district.

In addition to the land currently occupied by Greyhound, the station area consists of the state-, county-, and city-owned land generally between the railroad corridor and Smith Street / Graham Street extending roughly from Ninth Street to Stonewall Street, as well as surrounding privately-owned parcels. The "Main Block" of the site, where the rail station / multimodal facility will be located, is the block bounded by Graham Street, Trade Street, Fourth Street, and the railroad corridor. The general station area includes the "Station District" consisting of the publicly-owned parcels, and a larger "area of influence" that comprises surrounding blocks that may be influenced by CGS-related development. The station area is shown in **Figure 1**.

Figure 1: CGS Station Area





### 2.1.1 Need for a New Amtrak Station

The existing Charlotte Amtrak Station, which is located on North Tryon Street (denoted in **Figure 3**), was constructed in 1962 by the Southern Railway Company. The station handled approximately 185,000 boardings and alightings in FY 2015, and is currently served by eight daily arrivals and departures on three routes. The *Crescent* travels between New York and New Orleans, the *Carolinian* connects Charlotte and New York, and the *Piedmont* connects Charlotte and Raleigh.

**Figure 3: Uptown Charlotte Passenger and Freight Rail Facilities**



Source: North Carolina Department of Transportation

Several issues highlight problems with the existing Amtrak Station (shown in **Figure 4**). Primary constraints are a location and size that are inadequate. In addition to being prone to flooding, the station building is too small, and as a result is frequently overcrowded and lacks space for adequate baggage handling and station support facilities. Parking, access, and circulation throughout the station are limited. The location is disconnected from Uptown amenities and transit connections. The station tracks also serve as mainline freight tracks. As a result, operational inefficiencies are created when passenger trains occupy the tracks for boardings and alightings, blocking the tracks for freight movements during that time period. The current configuration of the existing passenger rail station, combined with the planned increase in passenger train frequencies, is incompatible with the expected increase in freight train volumes through Charlotte.

**Figure 4: Current Amtrak Station**



Source: North Carolina Department of Transportation

Charlotte is the busiest Amtrak station in North Carolina, with ridership to and from Charlotte steadily growing. The station is a key link in the federally-designated Southeast High Speed Rail Corridor. The goals of the project are to enhance intercity passenger rail service for Charlotte and the region, reduce conflicts between passenger and freight operations, improve passenger safety, comply with Americans with Disabilities Act (ADA) requirements including level boarding, increase access to the region's employment, entertainment and cultural center, and provide multimodal and intermodal connections.

### 2.1.2 Need for Multimodal Connectivity

CATS continues to pursue the advancement of its *2030 Transit System Plan*. With regard to CGS, future transit plans include a major role for the proposed station.

- The existing Charlotte Transportation Center (CTC) is at capacity now. CGS will provide an important secondary bus hub to relieve the pressure on CTC.
- Construction of Phase 2 of the CityLYNX Gold Line (streetcar) has begun, and will extend streetcar service west along Trade Street to the CGS site and beyond.
- A recently-completed plan update for the CATS Silver Line light rail project reviewed a number of alignment options through Uptown Charlotte, several of which could connect to the CGS site.
- CATS will soon begin a more detailed review of Center City transit system integration options, including a re-assessment of rapid transit alignment options to the west and to the north. These future corridors potentially could connect at CGS.

Beyond public transit, additional bicycle and pedestrian connectivity is desired to improve the connections between the east and west sides of the rail corridor. Fifth and Sixth Streets are envisioned as on-street bicycle routes, and additional off-street connections are desired to provide improved linkages between neighborhoods and attractions.

### 2.1.3 Need for Urban Development to Connect Activity Nodes

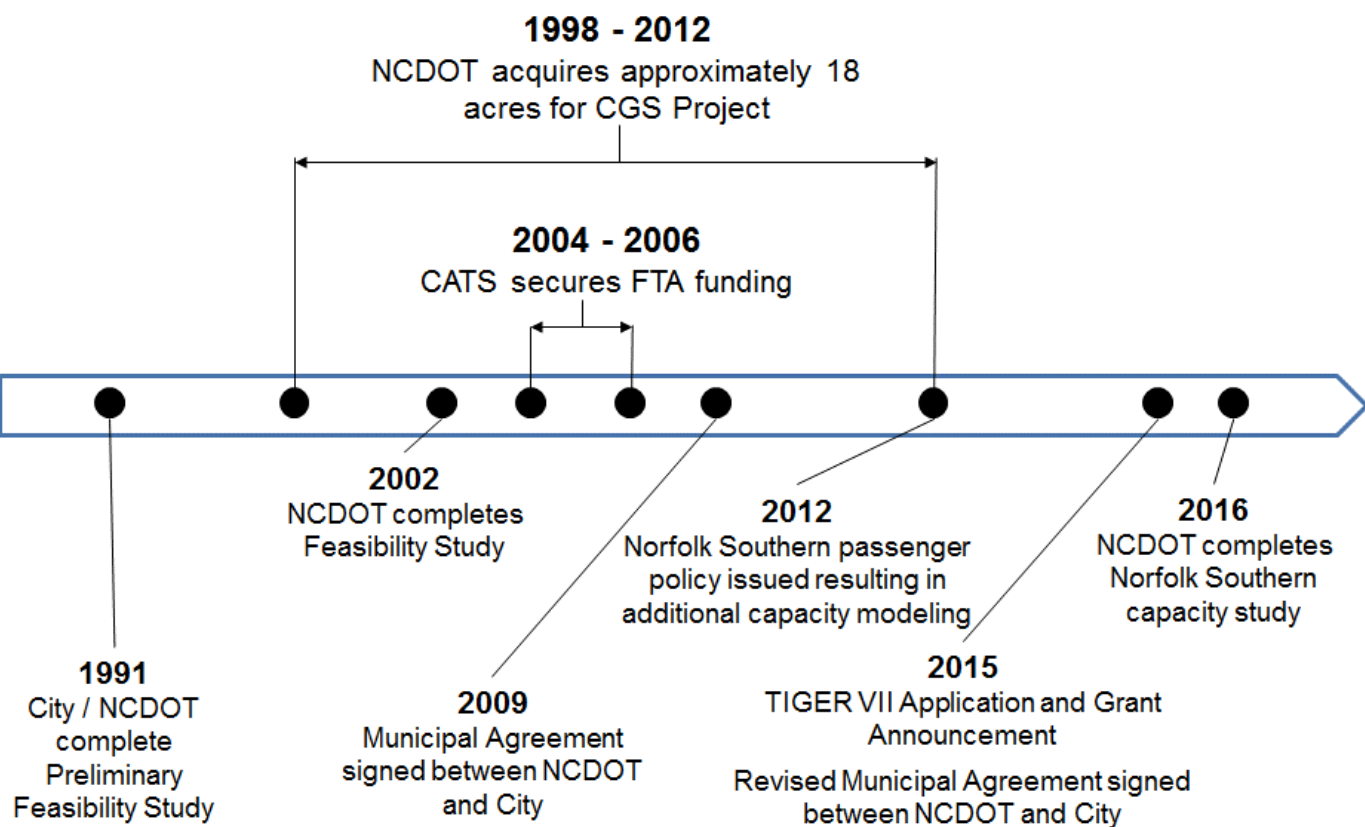
In years past, the CGS project was viewed as a catalyst to help jumpstart development near the existing rail corridor. This area had not been viewed as valuable property because it was somewhat removed from the central business core which is closer to Trade and Tryon Streets. However, over time, development has marched westward from the central core toward the rail corridor, with major investments in the form of BB&T Ballpark, Romare Bearden Park, and numerous residential developments. Likewise, the development of Gateway Village and Johnson & Wales University has effectively created a new business and residential center just west of the rail corridor.

As such, in the absence of CGS development, other growth forces have catalyzed growth to the east and west of the CGS site, and the Station District parcels now are the gap between these developed areas. The Station District parcels should be positioned to accommodate urban development that will help to bridge the gap and create a continuous urban realm from I-77 all the way through Uptown. Given the growth in the surrounding area, coupled with the major attractions located nearby and the transportation connections that will be enabled, CGS is poised to function as an important activity center in and of itself.

## 2.2 Current CGS Development Status

A series of planning efforts over the past 25 years explored development of an Uptown rail station, including an Environmental Assessment in 2009 that resulted in a Finding of No Significant Impact (FONSI). Based on these plans, both NCDOT and the City of Charlotte / CATS began to advance the CGS project. NCDOT acquired approximately 18 acres of land to facilitate station development, but efforts stopped short of breaking ground due to the lack of funding for capital construction. New momentum is now growing through the announcement of a federal TIGER grant in 2015 to the City of Charlotte / CATS to construct the tracks and structures necessary to support a future passenger rail station at the CGS site. A fully-functional multimodal station has not yet been designed and cannot be implemented until additional funding is identified. An overview of the planning history associated with the CGS project is provided in **Figure 5**.

**Figure 5: CGS Planning History**



Design is underway for the tracks, structures, and signal work (TS&S) and for the platform and canopy, with construction anticipated to occur between 2018 and 2021. The timeframe for design and construction of the station building, and other transportation components is dependent upon funding. The phasing plan described in this MSAP can provide a roadmap toward full implementation.

An overarching goal is to facilitate the near-term relocation of Amtrak to Uptown Charlotte. As such, it is a high priority of this MSAP to develop a concept that can be built in phases, with an early phase that includes construction of the infrastructure needed to provide a fully-functional rail station at the CGS site.

*A high priority of this MSAP is to develop a concept that can facilitate the construction of a fully-functional rail station at the CGS site.*

## 2.3 Goals and Purpose of MSAP

Four primary goals were identified for the MSAP process:

1. Establish the long-term vision for the Station District, but support near-term implementation;
2. Establish design principles;
3. Complete a modal analysis of transportation needs; and
4. Develop a phasing approach.

The MSAP establishes the design principles for the primary components of CGS, and provides an illustrative example of how the design principles could be applied. Additionally, the MSAP provides a financial and implementation plan for the phased development of the CGS site.

The vision concept illustrated in this MSAP is not a specific design proposal. The site is intended to be developed through a collaborative development process based on the goals and requirements of both the public and private sectors. As such, future development proposals will differ from the concept illustrated in this plan. However, the design principles established in this plan form the basis of future development proposals.

*The plan provides an illustrative example of how the design principles could be applied, but the vision concept is not a specific design proposal.*



## 3 THE SITE

### 3.1 Site Location

The CGS site is in Uptown Charlotte, approximately one-third mile west of the central business core at Trade and Tryon Streets. The site is bounded on the west by the railroad corridor, which runs north-south through Uptown.

The CGS Station District (comprised of the publicly-owned parcels that are available for development) straddles the Third Ward (south of Trade Street) and Fourth Ward (north of Trade Street) neighborhoods. Gateway Village has emerged as a vibrant educational, commercial and residential district anchored by Johnson & Wales University between the railroad corridor and I-77. Just east and south of the site, BB&T Ballpark and several new residential developments have breathed new life into the neighborhood.

For purposes of this MSAP, the Station District is subdivided into blocks. These blocks are the foundation of analysis for the vision concept, with the most emphasis placed on the “Main Block” and the adjacent “South Block” and “North Block”, as designated in **Figure 6**. Specific development concepts for these areas are presented in Section 5.



Gateway Village Streetscape. Source: ColeJenest & Stone



BB&T Ballpark. Source: Charlotte Observer

Figure 6: CGS Station Context



Source: WSP

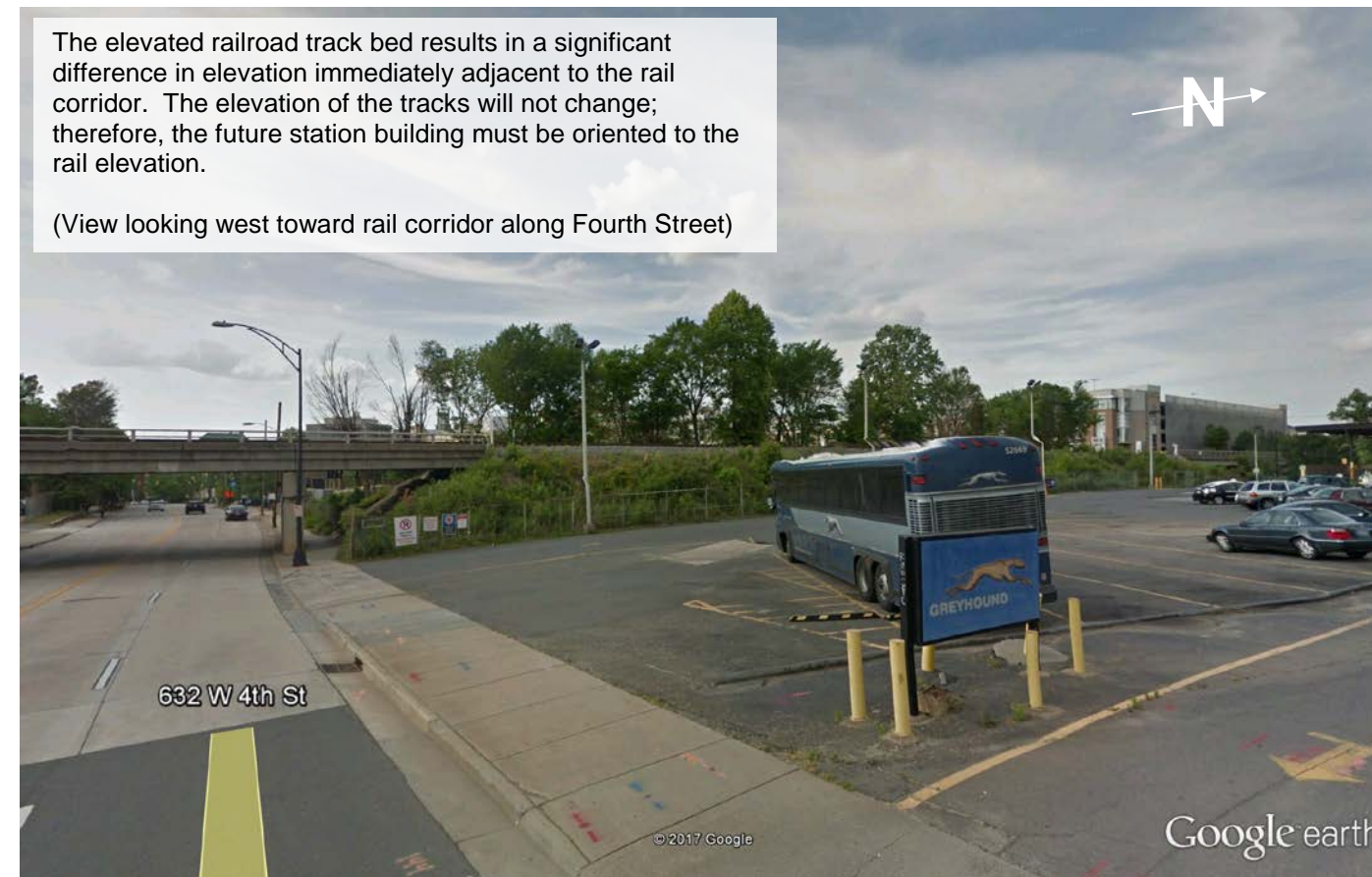


### 3.2 Physical Site Characteristics and Design Considerations

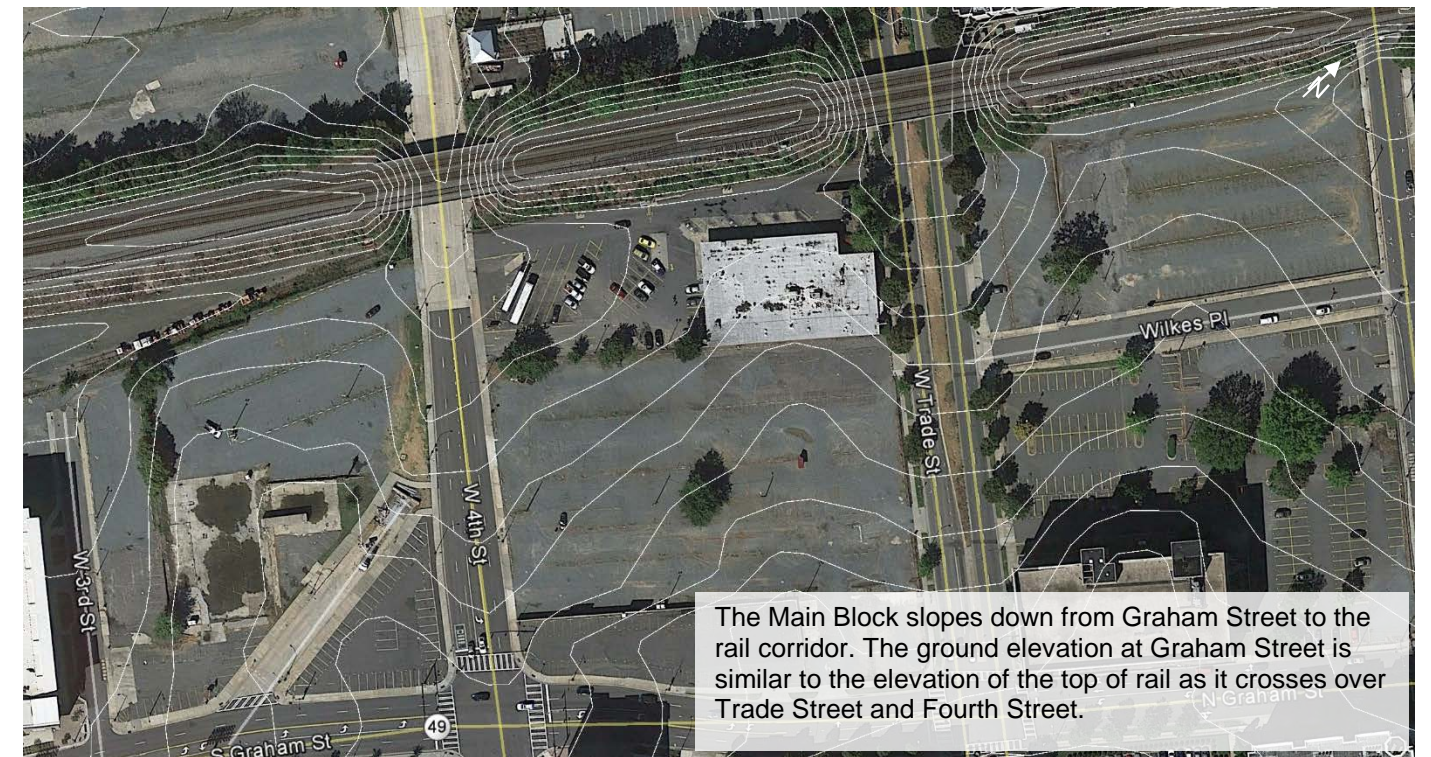
The CGS site is physically defined by several distinguishing characteristics, each of which has a significant impact on the layout and design of station facilities:

1. An elevated railroad track bed that creates a berm along the western edge of the site;
2. Significant change in elevation between the rail corridor and Graham Street, which runs parallel to the rail corridor; and
3. Through streets that are automobile-oriented and are heavily traveled.

**Figure 7: Elevated Railroad Track Bed at CGS Site**

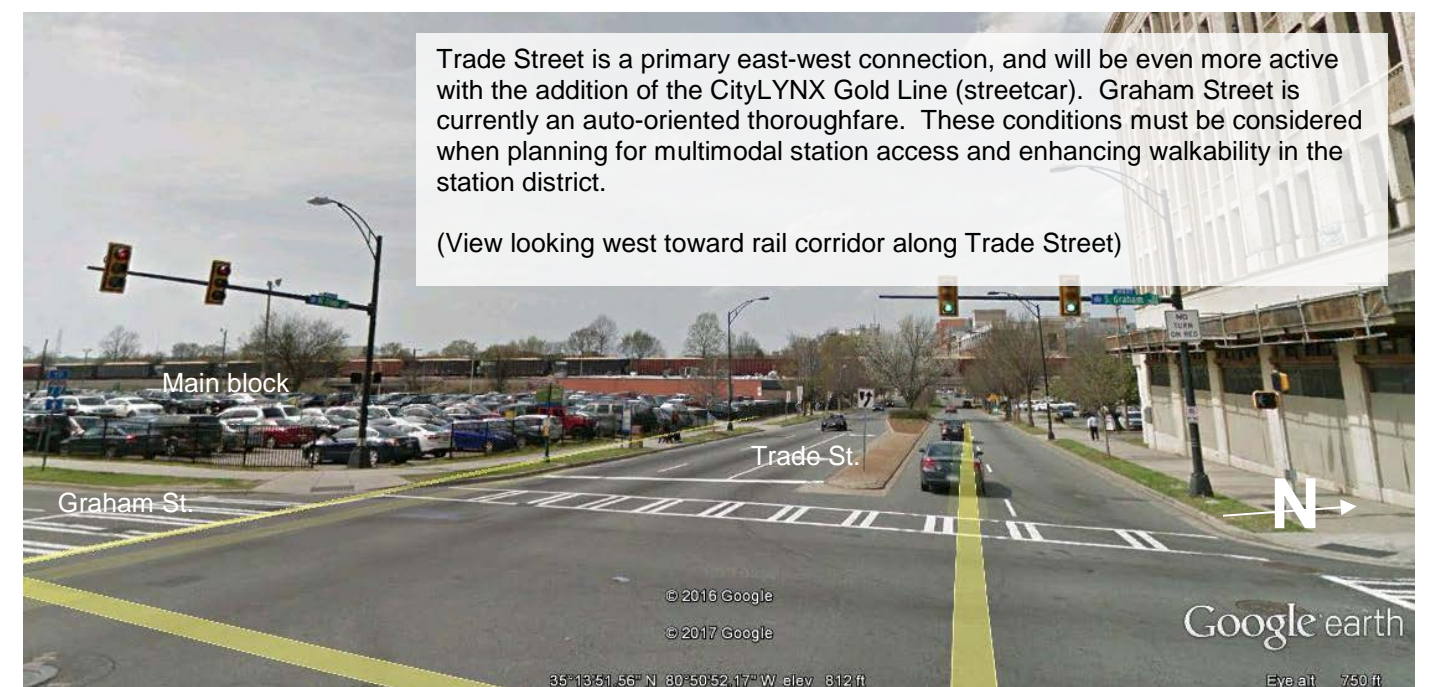


Source: Google Earth



Source: Google Earth, Mecklenburg County GIS

**Figure 9: Intersection of Trade Street and Graham Street**



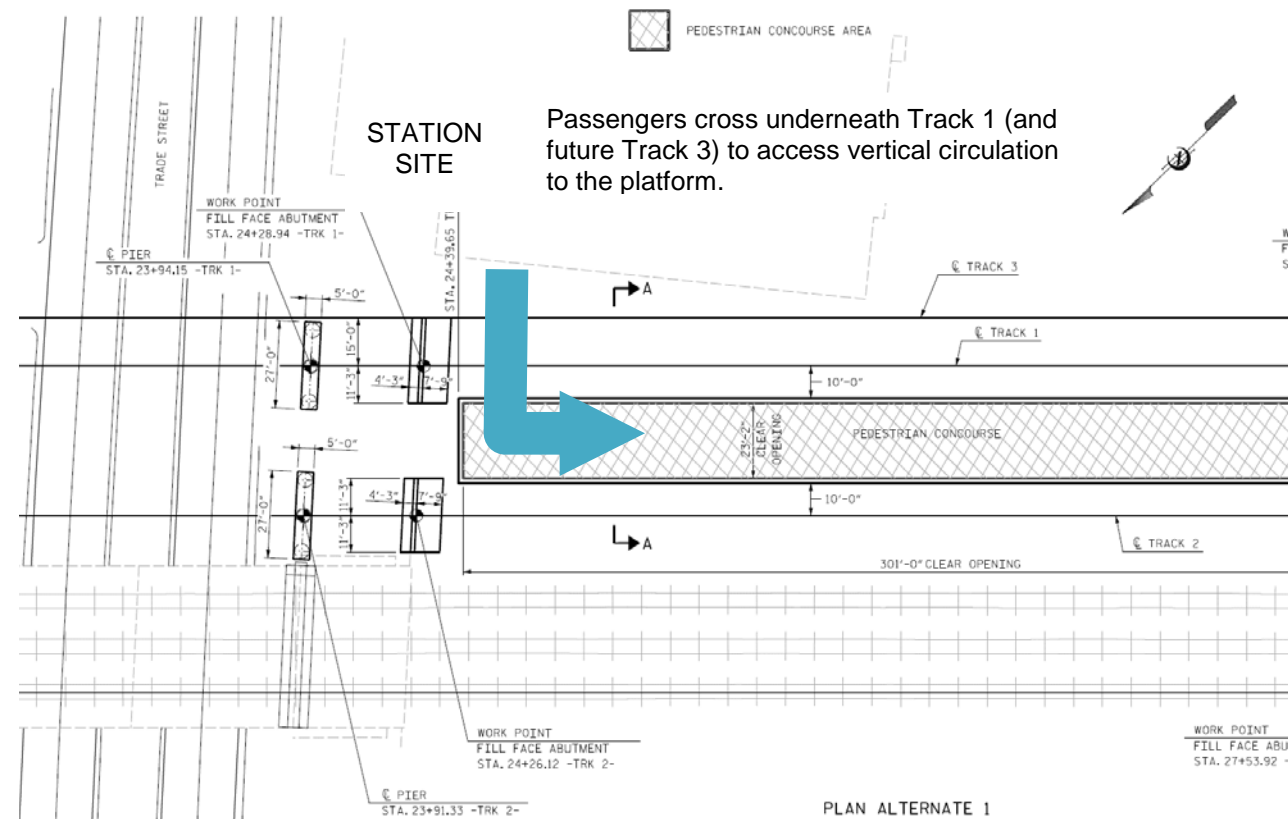
Source: Google Earth



Given these physical characteristics, several site design features need to be considered in early planning phases:

1. **Station building location** – The track and platform location dictate the station building location; to provide quick access between the waiting room and the trains, the station building should be located as close as possible to the tracks to minimize the passenger walk distance.
2. **Access to the platform** – The future platform will be a center-island platform. Platform access must occur via a concourse under the eastern station track, with vertical circulation up to the platform level to avoid at-grade track crossings (see **Figure 10**). This constraint restricts the number of platform access options to consider.

**Figure 10: Platform Access Schematic**



Source: North Carolina Department of Transportation

3. **Building arrangement on the Main Block** – It is desirable to maximize the opportunities for vertical development on the Main Block. To accomplish this, siting of buildings will need to be planned in response to the requirements for the station building location along with the site topography challenges.
4. **Facilitating station access** – The future station will be part of a densifying urban environment. With that in mind, parking and drop-off locations in proximity to the station building need to be planned in the context of the larger district. The traditional model of surface parking serving a train station in a low-density area is inappropriate in this urban setting.
5. **Strengthening connections under the rail overpasses** – The elevated rail corridor results in several roadway underpasses connecting the two sides of the corridor. With growing activity centers on both sides of the corridor, these

*In the long term, the model of surface parking serving a train station in a low-density area is inappropriate in this urban setting.*

underpasses are important pedestrian connections. The addition of the new station tracks to the east of the existing tracks will effectively double the width of the underpass (see **Figure 11**). Considering design options to improve the future under-bridge conditions is vitally important and should be done in a manner that coordinates with the overall site development.

**Figure 11: Existing Trade Street Underpass**



Source: Charlotte Area Transit System

### 3.3 Momentum for Growth

Development continues to occur at a rapid pace in Uptown Charlotte. According to Charlotte Center City Partners' most recent *Development Report*, a range of projects is planned or under construction in Third Ward and Fourth Ward, near the CGS site:

- 830,000 square feet of office;
- 73,000 square feet of retail;
- 254 hotel rooms; and
- 2,059 residential units.

Given this momentum, it is important that the CGS development build upon and complement other emerging development efforts in the surrounding neighborhoods.



### 3.4 Transportation Program Requirements

**Table 1** below describes the conceptual transportation program requirements associated with CGS and offers general design guidelines for individual elements. These guidelines are based on conversations with NCDOT Rail Division and City of Charlotte staff, applicable industry standards, and recommendations from previous related planning studies.

**Table 1: Transportation Requirements for CGS**

MODE	GUIDELINE
<b>Intercity Rail</b>	<ul style="list-style-type: none"> <li>Minimum of two tracks with provision for a third track and second platform to the east for future rail services.</li> <li>New station and access track bridges over W. Fourth Street, W. Trade Street, W. Fifth Street, W. Sixth Street, and the P&amp;N bridge / greenway.</li> <li>Platform of 1,000' – 1,200' length to accommodate the full length of the largest expected trainsets (Crescent).</li> <li>Canopy of approximately 600' in length, to accommodate the full length of the Carolinian.</li> <li>Station building for rail passengers with ticketing, waiting area, baggage handling capability, and customer amenities. Consider "full-build" (not "interim") station requirements with regard to sizing for Category 2 Medium Stations per Amtrak Station Program and Planning Guidelines.</li> <li>The platform location and geometry is set; however, the station building size is flexible.</li> </ul>
<b>Intercity Bus</b>	<ul style="list-style-type: none"> <li>Provide 6 bus slips to accommodate 45' intercity buses, plus 2 additional "ready bus parking" slips.</li> <li>Provide minimum of 16' clearance to accommodate double-decker intercity buses.</li> <li>Minimize number of turning movements into and out of bus loading / unloading areas.</li> <li>Specific needs included based on identified needs from the current intercity bus provider; final sizing will need to be negotiated.</li> </ul>
<b>Local and Express Bus (CATS)</b>	<ul style="list-style-type: none"> <li>Provide 6 to 8 bus bays; local bus traffic to be separated from general traffic stream.</li> <li>Include adequate space on street to accommodate CATS express buses.</li> <li>Provide space for some layover of express buses.</li> <li>Consider a well-designed below-grade bus concourse.</li> </ul>
<b>Local Rapid Transit Services</b>	<ul style="list-style-type: none"> <li>Recognize CityLYNX Gold Line on Trade Street.</li> <li>Stay abreast of future decisions related to the proposed Center City alignment for Silver Line light rail (east to Matthews and west to the airport).</li> </ul>

MODE	GUIDELINE
<b>Bicycle</b>	<ul style="list-style-type: none"> <li>Consider B-cycle kiosks at multiple locations throughout the station district.</li> <li>Enhanced bicycle lanes within Fifth and Sixth Streets are being considered. A connection from the CGS "Main Block" to these facilities should be provided.</li> <li>It is desirable to provide bicycle access between Cedar and Graham Street using Fourth and Fifth Streets.</li> </ul>
<b>Pedestrian</b>	<ul style="list-style-type: none"> <li>Sidewalks, crosswalks, and pedestrian signals should facilitate easy access to station from the surrounding area.</li> <li>Strong pedestrian connections to the south (to access Bank of America Stadium and BB&amp;T Ballpark) and to Trade Street are especially critical.</li> <li>Accommodate as much pedestrian / sidewalk space as possible as part of the design of the rail bridge underpasses.</li> </ul>
<b>Parking</b>	<ul style="list-style-type: none"> <li>Per NCDOT, provide a minimum of 200 – 250 spaces to accommodate existing and future ridership (one space for every 2,000 annual riders).</li> <li>Parking policy could include free or paid parking; specific provisions will be determined as part of a future development agreement.</li> <li>Include provisions for police / security parking, and 10-15 spaces for employees.</li> <li>Distribute ADA compliant spaces among all parking types (short- and long-term, pickup/drop-off, etc.).</li> <li>Use 90-degree parking stalls for both short- and long-term parking where possible.</li> <li>Consider opportunities for shared parking with adjacent development.</li> <li>Encourage transit and bicycle access to parking areas.</li> </ul>
<b>Taxis and Car-Sharing Services</b>	<ul style="list-style-type: none"> <li>Taxi staging areas to be separated from bus traffic areas.</li> <li>Designate private provider stand area.</li> </ul>
<b>Kiss-and-Ride</b>	<ul style="list-style-type: none"> <li>Kiss-and-ride staging areas to be separated from bus traffic areas.</li> <li>Provide short-term parking spaces for rail and intercity bus passenger pick-up/drop-off activities.</li> </ul>
<b>Street Connections</b>	<ul style="list-style-type: none"> <li>Vehicular access to and from city streets should minimize conflicting turning movements.</li> <li>Possible future extension of Stonewall Street to Cedar Street at current greenway connection adjacent to Bank of America Stadium.</li> <li>Possible conversion of Martin Luther King, Jr. Blvd. to two-way operation for its entire length.</li> <li>Possible extension of the two-way portion of Fourth Street farther into Uptown.</li> </ul>

## 4 THE VISION

### 4.1 Station Area Development Themes

Based on the input received during the multi-day stakeholder workshop held in August 2016, coupled with subsequent feedback received through a web survey and additional outreach, a series of overarching themes was identified to guide the overall vision concept. These themes provided a basis for the subsequent definition of design principles (discussed in Section 4.3), and also inspired the three concepts that were initially crafted and then refined to form the final concept presented later in this report.



### 4.2 Visioning Process

The station concept presented in this MSAP emerged from a collaborative visioning process that featured a multi-day workshop to develop initial site concepts, followed by an iterative process to refine a single preferred concept.

#### 4.2.1 Visioning Workshop

Key stakeholders and the public were invited to participate in a series of work sessions held August 1-3, 2016 at the Charlotte Mecklenburg Library - Main Library Branch to gather input on the desired land uses and urban form in the station area. These sessions informed the creation of guiding design principles and a series of three initial urban design concepts. As part of the workshop, a series of four stakeholder input sessions were also held. The input sessions included a diverse group of representatives from various organizations in the region who have a direct interest in the CGS project.

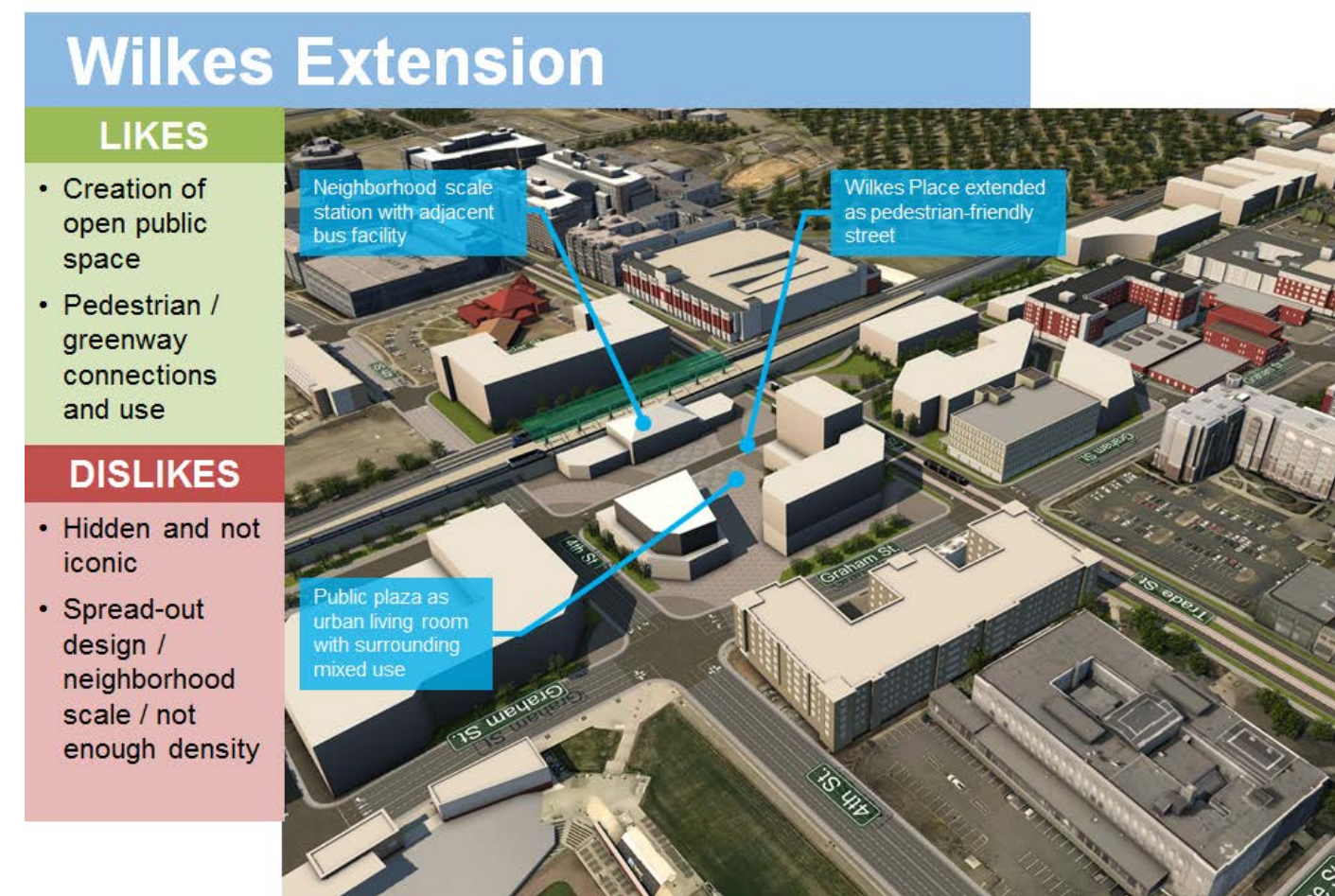
Additionally, two public forums were held during the course of the workshop. The first public workshop included a series of presentation boards designed to get a sampling of the public's vision for CGS. Through this feedback, additional information was gathered to help define and conceptualize the initial urban design concepts. The second workshop was held at the conclusion of the visioning workshop and was intended to solicit public feedback on the three initial urban design concepts: 1) Wilkes Extension, 2) Bridge Station, and 3) Atrium Station.

#### 4.2.2 Initial Design Concepts

Using the information gathered from the stakeholder input sessions and the initial public forum, coupled with the previously-defined transportation program requirements, three high-level urban design concepts were developed during the visioning workshop. The intent of developing three concepts was to create a range of ideas, and then seek feedback on likes and dislikes related to all three concepts (see **Figure 12**, **Figure 13**, and **Figure 14**). Obtaining this type of feedback for a range of options provides more substantive input than would otherwise be obtained if only one concept were developed. These concepts were developed only to a highly conceptual level, as a way to quickly identify key points of comparison.

##### 4.2.2.1 Concept 1: Wilkes Extension

Figure 12: Overview of Wilkes Extension Concept

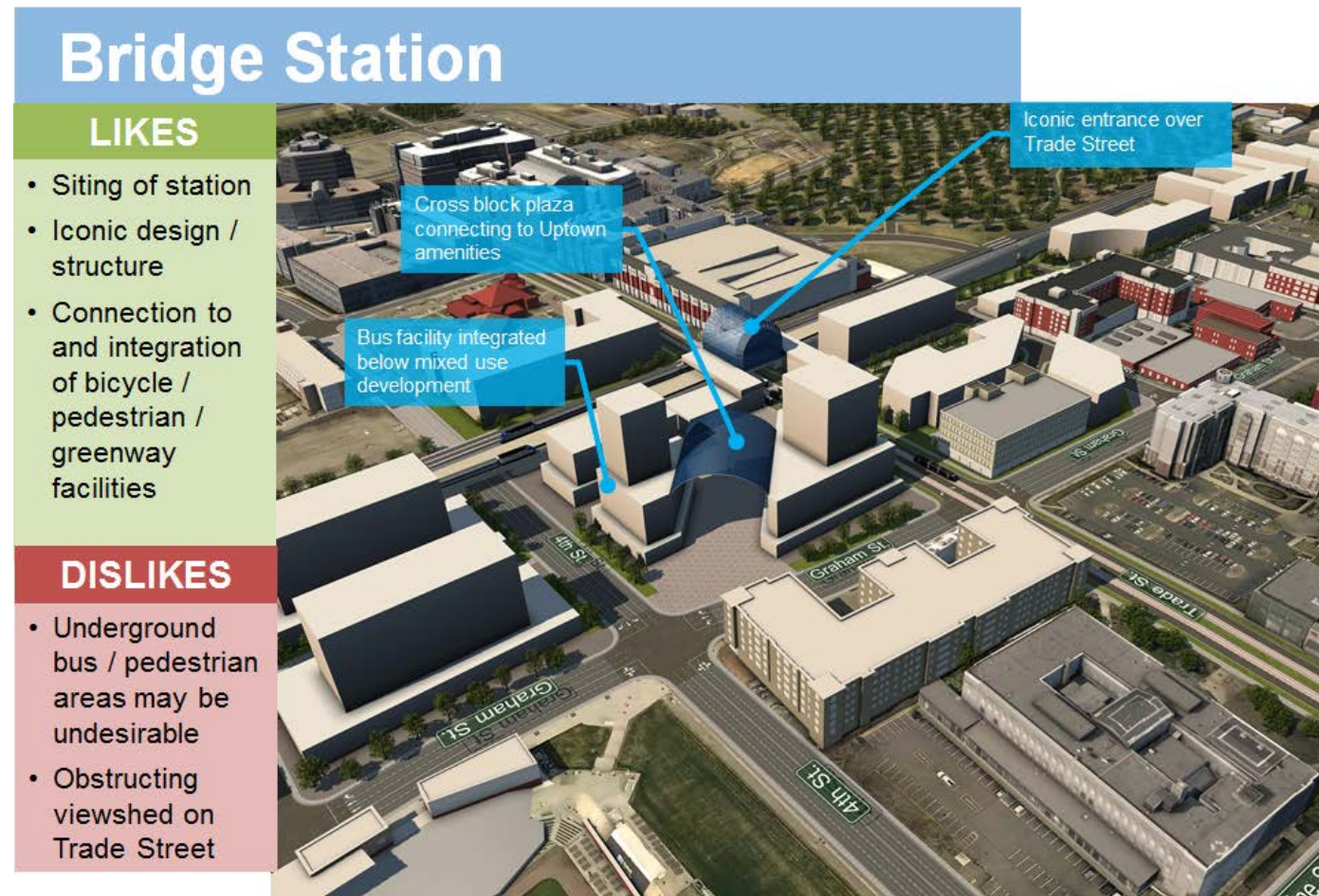


Source: WSP



#### 4.2.2.2 Concept 2: Bridge Station

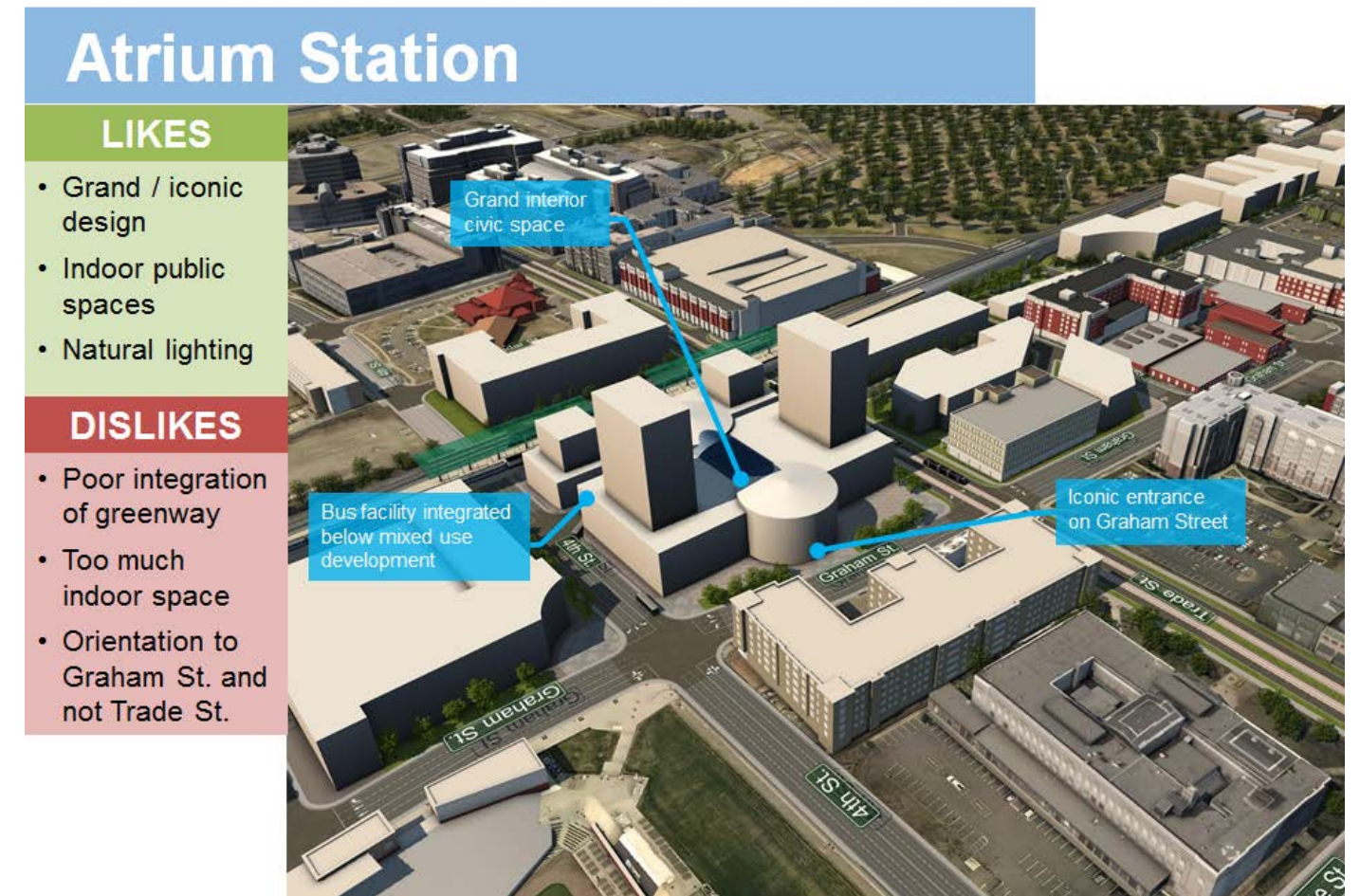
Figure 13: Overview of Bridge Station Concept



Source: WSP

#### 4.2.2.3 Concept 3: Atrium Station

Figure 14: Overview of Atrium Station Concept



Source: WSP

### 4.2.3 Concept Refinement and Follow-Up Public Meeting

Based on the feedback received from the public and stakeholders, a single design concept was advanced. The refined design was rooted in the principles of the “Bridge Station” concept, but incorporated the most desirable elements of all three initial concepts. The updated design concept was presented at a second public workshop, held on Wednesday, November 9, 2016. The purpose of the meeting was to present the updated design concept for the station area and to receive feedback from attendees on the overall concept with regard to land use, transportation connections, development opportunities, and desired amenities for the station area. A separate “stakeholder preview” presentation was given to invited stakeholders prior to the public meeting.

After the second meeting, the iterative refinement process continued, with a greater focus on defining more specific design principles, as well as an illustrative concept that addresses the transportation program requirements and design challenges identified earlier. This iterative process resulted in the establishment of design principles, overall site concept, facility plan, and implementation strategy presented in the remainder of this report.



## 4.3 Design Principles

The plan provides an illustrative example of the application of the design principles, but is not intended to be a final design proposal. However, the multi-phase development of CGS should adhere to the general design principles established in this section.

The principles presented here build upon input received throughout the planning process, and also refer to guidelines established during the *Center City 2020 Vision Plan*. Guiding principles from similar efforts in peer cities, such as Denver's Union Station, are also referenced for elements that are consistent with the CGS vision.

### 4.3.1 General Principles

1. Transit infrastructure, public space, and buildings must be of human scale and enhance the experience of transit users, residents, and visitors. Transit architecture, public spaces, private development, and transportation functions will be integrated into a cohesive, distinctive urban place.
2. The public realm must be clearly legible and form a network of continuous spaces, providing continuity between the surrounding public streets, and public spaces, and transit access.
3. The public realm, transit infrastructure, and private development must be designed and constructed to the highest standards of quality, permanence and civic character.
4. Multimodal transportation is the defining aspect of CGS. Attractive, convenient, and clear pedestrian circulation will be fundamental to success. All functions accommodated on the CGS site must be usable to all people, to the greatest extent possible, without need for adaptation or specialized design.
5. The private development buildings have a special obligation to frame and support the civic nature of the public transportation and to define and activate the public spaces. The private development buildings will be visible from all sides, so each elevation is important. These buildings also provide the greatest opportunity for retail to serve transit riders, residents, workers and visitors. In addition, there is an obligation to provide optimal pedestrian environments at all entries to the transit area.
6. All elements of the CGS site—the private development, the public spaces, and the transit—must together create a unique sense of arrival. Likewise, the transit functions must be apparent and fully accessible by pedestrians from all directions.
7. Ease of orientation to the city and the transit must be achieved. Wayfinding should be intuitive to the greatest extent possible, but should include a comprehensive signage program.
8. The urban design must support the convenience and comfort of all users, workers, residents and visitors at all times of day and evening, weekdays and weekends.
9. The public spaces of the station area must be flexible to accommodate the needs of transit riders, businesses, residents and the immediate neighborhood, while allowing the opportunity for a variety of other community activities.
10. Establish a hierarchy of site planning elements – public spaces, streetscapes, buildings, parking, and service areas – that supports transit access and pedestrian circulation within the CGS site, while establishing a framework for the public space design.
11. Promote visibility of vehicle areas and transit facilities by pedestrians and vice versa as a means of enhancing safety.



*Just west of the Charlotte Gateway Station site, Gateway Village includes active and engaging public spaces.*  
Source: ColeJenest & Stone



## 4.3.2 Transportation Program Requirements

### 4.3.2.1 Rail Station Layout and Design

1. Ensure that the transportation architecture and mixed-use development forms a worthy gateway experience for both passengers and non-passengers.
2. Provide primary access in the vicinity of Trade Street to the platforms for intercity and any future other rail services.
3. Station building architecture should be iconic and distinguish the station from adjacent land uses.
4. The platform canopy architecture should be iconic, to include a unique and highly visible design element over or adjacent to Trade Street.
5. Ensure that the station building reflects its own identity and is understood as the centerpiece of the site and the station area as a whole. The station building should be highly visible from adjacent public spaces and streets.
6. Ensure that the station building and new private development buildings interact with and activate the ground level and plaza level public spaces through the provision of active uses and pedestrian-friendly design.

### 4.3.2.2 Site Circulation

1. Establish a hierarchy of multiple circulation systems – rail and bus transit, vehicle, pedestrian and bicycle – within a relatively small area, while retaining and reinforcing the overall urban, pedestrian character of adjacent neighborhoods.
2. Facilitate pedestrian linkages between transit, public space, and connections to contiguous areas.
3. Provide for public transit circulation in a way that minimizes conflicts with other vehicles and with general pedestrian and bicycle movements, while providing safe and convenient access by users of public transit modes.

### 4.3.2.3 Access to Rail and Transit Facilities

1. Taxi and passenger drop-off /pick-up areas should be consolidated to create clear circulation patterns for all transportation modes.
2. Promote pedestrian and bicycle accessibility to all areas of the CGS site, except vehicle driveways, service areas, and dedicated transit ways (such as the track area) as a means of enhancing walkability in the district and therefore livability of the neighborhood. The quality of the pedestrian experience has a significant influence on the success of mixed-use districts.
3. Provide appropriate parking facilities for bicycles.
4. Parking for rail passengers should be accommodated on the Main Block to minimize walk distance to the station building. Parking pricing policy will be determined in future design phases.
5. Passenger drop-off / pick-up for the rail station should minimize walk distance to the station building.
6. Accommodate pedestrian access between the Main Block and the South Block via an at-grade crossing of Fourth Street with pedestrian safety features, and a grade-separated crossing using the greenway connecting to the plaza level of the Main Block. A direct connection between the greenway and the second floor of the parking garage is encouraged.



*The Anaheim Regional Transportation Intermodal Center (ARTIC) is an iconic transportation hub.*

Source: City of Anaheim



*Denver Union Station features a uniquely-designed canopy.*

Source: Regional Transportation District



#### 4.3.2.4 Other Modal Connections

##### Greenway

1. Develop a linear greenway along the railroad corridor that links the station area blocks to destinations north and south of the station area, including a linkage between Bank of America Stadium and Ninth Street.
2. Development should have significant interactions with the greenway to enhance the pedestrian experience.
3. Provide a safe, attractive, and active connection along the greenway.
4. Provide a major access point to the station building and to the plaza level of the Main Block.
5. Provide connections through vertical circulation and at-grade connections as appropriate to Third Street, Fourth Street, Trade Street, Fifth Street, Sixth Street, Seventh Street, Eighth Street, and Ninth Street.
6. Create gathering spaces along the greenway that encourage active use.

##### Streetcar Station

1. Integrate the planned CityLYNX Gold Line stop into the station area design with safe pedestrian access across Trade Street to the station building.
2. Consider vertical connections from the CityLYNX Gold Line stop to the greenway above at plaza level.

##### Local Bus (CATS)

1. Accommodate CATS bus service in an off-street facility located on the ground floor of a structured parking facility on the South Block. The off-street bus facility will be shared by CATS local bus services and intercity bus services.
2. Bus ingress and egress to the facility will be off of Third Street (accessed from Graham Street) and Fourth Street.
3. Provide an indoor, climate-controlled waiting area adjacent to the bus facility.

##### Express Bus (CATS)

1. Accommodate CATS bus services with stops in both directions on-street along Fourth Street (preferred) or Trade Street. Fourth Street is preferred over Trade Street due to the volume of streetcar and other vehicular activity on Trade Street. Locating bus stops along Fourth Street also provides a direct connection to the off-street bus facility on the South Block used by local and intercity buses.

##### Intercity Bus

1. Accommodate intercity bus service in an off-street facility located on the ground floor of a structured parking facility on the South Block. The off-street facility will be shared by CATS local bus services and intercity bus services.
2. Bus ingress and egress to the facility will be off of Third Street (accessed from Graham Street) and Fourth Street.
3. Provide for bus ticketing, baggage handling, and passenger amenities on the ground floor of the parking garage.

##### Future Rapid Transit Connections

1. Incorporate future CATS bus-based or rail-based transit corridors as appropriate within the overall site plan.



Outside of Philadelphia's 30<sup>th</sup> Street Station, "The Porch" offers numerous gathering spaces.

Source: University City District



An intercity bus terminal was recently constructed in the parking garage of Washington Union Station.

Source: The 42



### 4.3.3 Development Framework

#### 4.3.3.1 Massing, Density, and Building Form

##### Overall Guidelines

1. The Main Block should include private development building heights that are compatible with the site's location in the central core of Charlotte.
2. Reinforce the civic role of the transportation architecture and provide a sense of permanence.
3. Buildings should setback to accommodate preferable sun angles and lines of sight.
4. Provide active edges to streets and public spaces, where there is visual engagement between people inside the buildings and people outside in the street or public space.
5. Promote the use of high-quality, durable, and low maintenance materials that express the civic function of the CGS site and are appropriate to an urban environment.
6. Provide a high degree of transparency (e.g. glass facades) at the ground level.
7. Ensure appropriate degrees of transparency at upper floors, depending on uses.
8. Promote the role of building facades in framing the public spaces.
9. Promote visual interest, especially at the ground floor.
10. Promote interaction between building entrances and streets and public spaces.
11. Station architecture and private development should work in unison to create great public spaces.

##### Main Block – Plaza Level

1. Integrate the plaza area into the overall public space scheme and adjacent buildings.
2. Promote pedestrian active uses at plaza level.
3. Establish the plaza as a unique destination.

#### 4.3.3.2 Parking Performance

1. Although temporary surface parking may be necessary to support interim development of the station building prior to the larger private development on the Main Block, no surface parking should be planned to support the ultimate build-out.
2. Parking facilities should not be visible from street level. Vertical parking structures should be wrapped with other uses.
3. Minimize the visual impact of parking structures on the pedestrian experience, the street environment and adjacent properties.
4. Rail passenger parking should be accommodated on the Main Block to minimize the walk distance between parking and the station building.
5. To the extent practical, subsurface parking on the Main Block should support rail transportation needs and Main Block private development needs. Ancillary structured parking on the South Block will support South Block private development, as well as provide additional capacity for Main Block development.
6. Structured parking on the South Block should have additional capacity to support general public parking needs beyond those oriented strictly to CGS development.



Seattle's South Lake Union features active street edges.

Source: Sean Marshall



The Adelaide (Australia) Central Bus Station features structured parking and adjoining residential uses.

Source: ASILE



#### 4.3.3.3 Desired Uses

1. Office development should be the primary non-transportation use on the CGS Main Block. Retail and restaurant uses should be incorporated into both interior and exterior spaces on the ground floors of Main Block buildings. Significant office use on the Main Block is envisioned to help maximize on-site intensity and anchor an expanded employment concentration.
2. Residential development wrapping a structured parking facility is a desirable use on the south block. With the bus facility on the ground floor of the south block, on-site residents would be closely connected to local transit opportunities.
3. The North Block presents challenges due to the narrow width of the development pad but hotel use is one possibility.
4. Opportunities for civic uses and amenities should be considered throughout the station area.
5. To ensure that the area's character is authentic to Charlotte, the focus of future development should revolve around supporting the neighborhood as a place to live and work. It is acknowledged that transportation-based demand may not be the primary market for development decisions.
6. A range of flexible gathering spaces should be provided, both indoor and outdoor.
7. Encourage mixed-use development that reinforces the civic nature of the area and provides a worthy frame to the station building and the public realm.

#### 4.3.3.4 Opportunity for Phased Implementation

1. Through detailed site design and construction sequencing, minimize the construction impacts on existing public space.
2. Ensure the continuous availability of rail station parking and drop-off / pick-up in close proximity to the rail station building throughout the phased development of the station area.

#### 4.3.4 Urban Design

##### 4.3.4.1 Public Spaces Design

1. Provide weather protection from the elements for transit users.
2. Present a distinct and identifiable image for transit facilities.
3. Create coherent and unified outdoor and indoor spaces for transit.
4. Promote a distinctive sense of place, with an appropriate sense of civic permanence.
5. Promote access to transit from the surrounding streets and plazas through effective wayfinding.
6. Promote functional interaction with the surrounding buildings, even if privately developed, while maintaining integrity as public space.
7. Provide clear and inviting access into the plaza level from all four edges of the Main Block.
8. Ensure that public spaces can be activated at all times of the day, evenings and weekends, not just during peak rail service or during special events at nearby sports or other venues.
9. Accommodate a variety of uses, including temporary and special events.



Denver's Union Station features a "living room" that hosts formal and informal gatherings.

Source: Danny Pleasant



Kamppi Bus Station in Helsinki, Finland is oriented around a large outdoor plaza.

Source: Wikimedia



#### 4.3.4.2 Streetscape

1. Respond to the City's planned hierarchy of streetscapes in the station area, including a distinctive hierarchy of streetscapes that respond to the unique conditions of the site – the presence of multiple modes of transportation, the focus on the new station building, and the civic importance of the new district.
2. Recognize the primacy of pedestrians in the planning of streets, sidewalks, intersections, and streetscapes.
3. Prioritize strong pedestrian connections along Graham and Fourth Streets to BB&T Ballpark and Romare Bearden Park.
4. Ensure that the CGS site and the entire station area constitute a pedestrian friendly urban environment that is safe, inviting, and active. The highest intensity of active edge should be concentrated around the Main Block and all blocks adjacent to the Main Block.
5. Provide continuity of pedestrian-oriented uses that supports an active public environment that is pedestrian in scale, and that engages people passing by, and that provides active views on the street.
6. Integrate the sidewalks, streetscape features, and pedestrian routes into the general public plaza design.
7. Using placemaking applications will enhance key intersections providing a unique experience within the CGS district, with particular attention given to the intersections of Trade Street & Graham Street, Trade Street & Wilkes Place, and Fourth Street & Graham Street.
8. Orient the Trade Street corridor for high levels of pedestrian activity, with no new curb cuts to access parking or service areas. Parking and service access should occur from Fourth Street.
9. Underpasses should be considered as statement gateways that are activated with artwork, lighting, and uses that enliven the environment and reduce the perceived "tunnel" effect.

#### 4.3.4.3 View Corridors

1. Respect the Trade Street view corridor (protected sightlines) and site the station building to provide views of the iconic station building and passenger canopy from both the east and west.
2. Utilize the architecture and placement of the buildings on the Main Block to frame the view into the plaza area from the intersection of Fourth Street and Graham Street as well as the intersection of Trade Street and Graham Street.
3. Buildings should step back in height at varying intervals to maintain access to sunlight and views of the Uptown core.



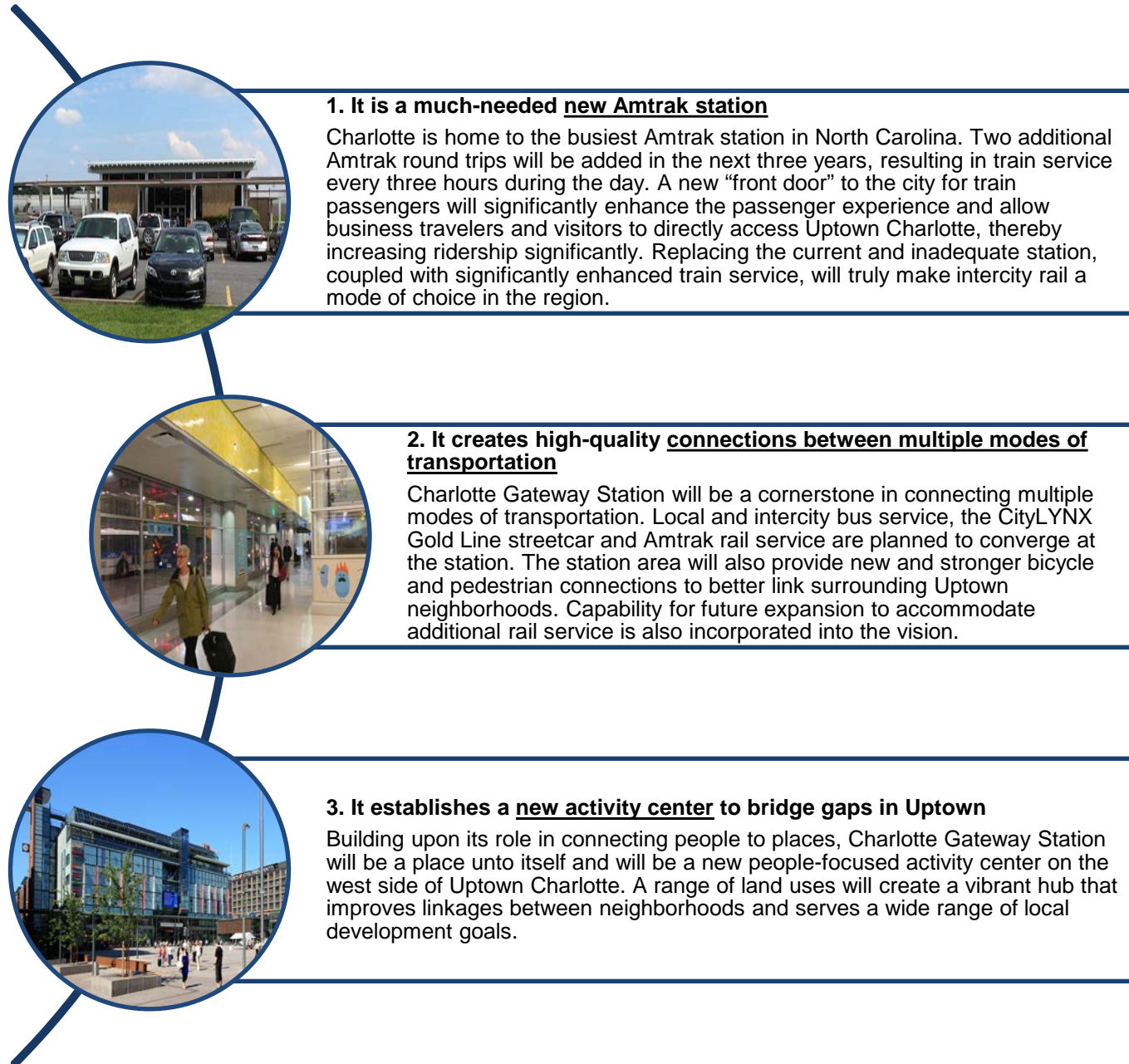
*The Levine Center for the Arts features engaging street edges.*

Source: CharlotteFive

## 5 THE CONCEPT PLAN

### 5.1 Concept Overview

Building upon the overall vision for development of Charlotte Gateway Station and the surrounding district, the concept for CGS includes three primary components:



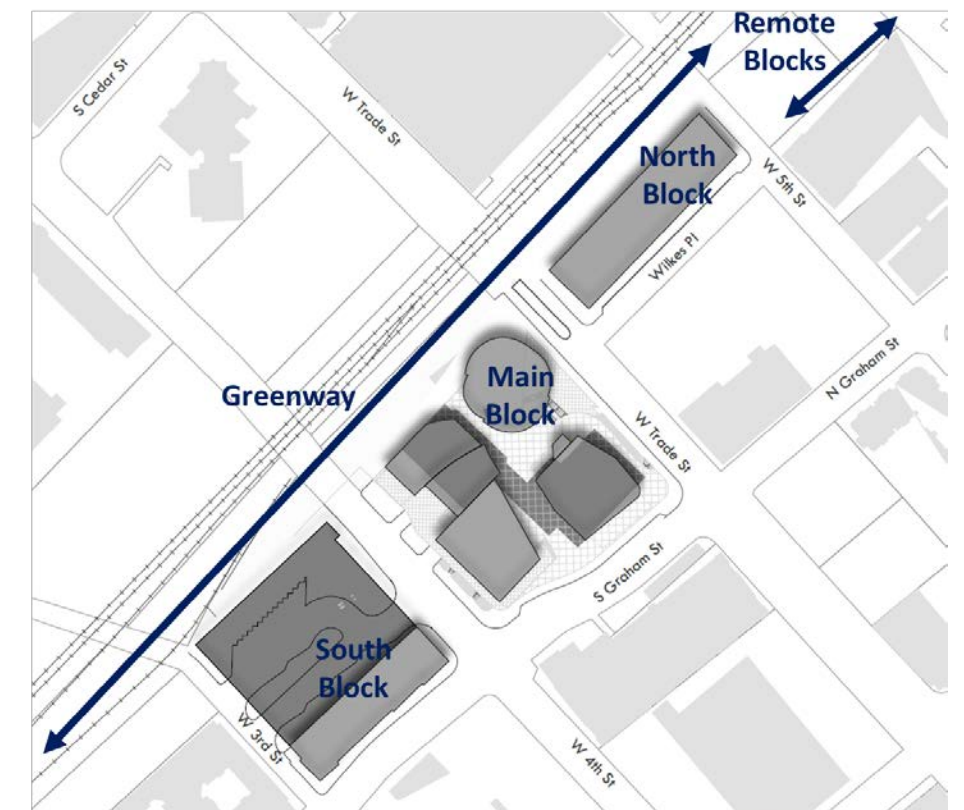
### 5.2 Station District

The overall Station District is centered on the approximately 19 acres of publicly-owned and Greyhound-owned land including the proposed station site and the surrounding blocks. For purposes of this report, the Greyhound-owned property is classified as publicly-owned, as it is the intent of the NCDOT and City of Charlotte to acquire that parcel. Development of these parcels will be informed by this MSAP. It is envisioned that development of the publicly-owned land will occur through a development agreement between the public sector owners and future private sector developers. Beyond these publicly-owned parcels, the vision plan also can influence the redevelopment of surrounding privately-owned parcels.

The publicly-owned parcels of the Station District can be identified by block. Each block, or group of blocks, has a specific role in the overall development framework. The vision plan components (see **Figure 15**) are identified for the following:

- **Main block**, bounded by Trade Street, Graham Street, Fourth Street, and the rail corridor, is the focal point of the Station District. This block is home to the rail station building, platform, and associated functions, and can accommodate major mixed-use private development.
- **South block**, bounded by Fourth Street, Graham Street, Third Street, and the rail corridor, is where the local and intercity bus facilities will be located, as part of a larger development that also could include residential uses and structured parking. A portion of this block is currently owned by Mecklenburg County, and for purposes of this plan, the County-owned parcel is included in the development vision.
- **North block**, bounded by Fifth Street, Wilkes Place, Trade Street, and the rail corridor, is a small parcel that is limited by its size when defining the desired functionality. A hotel use is one possibility for this block.
- **Remote blocks** are those located between Smith Street and the rail corridor, north of Fifth Street and south of Ninth Street. These blocks are likely to be developed with lower intensity, given their location. Mid-rise residential uses, separated from the rail corridor by a greenway buffer, are a possibility for these blocks.
- A **Greenway** component extends linearly along the rail corridor through the Station District, from Bank of America Stadium in the south to Ninth Street in the north. The greenway serves as a vital connection both across the District as well as between facilities within the District.

Figure 15: Station District Blocks



Source: WSP



## 5.3 Main Block

### 5.3.1 Site Components

The Main Block is comprised of the rail station building as well as large-scale private development. On-site parking is included to support rail customers and private development patrons. The Main Block will be the “focal point” of the Station District, and will feature iconic architectural elements; high-density, mixed-use development; and multiple activity nodes.

Given the site topography, the Main Block will be constructed on two primary levels. The “plaza level” will extend across the block at the Graham Street (higher) elevation. Because the elevation drops off across the block toward the railroad corridor, space is available for a “concourse level” underneath the plaza level. The “concourse level” would actually be at street level along Trade Street and Fourth Street near the rail corridor (because the elevation is lower at these locations), and the concourse level would continue east through the Main Block at the same elevation so it would be the equivalent of a subsurface level at Graham Street. To facilitate this approach, the plaza level would be constructed on a plinth that extends across the block at approximately the Graham Street elevation. The section view of the Main Block in **Figure 16** illustrates the relationship between the plaza level and the concourse level underneath. A smaller mezzanine level is above the plaza level.

#### 5.3.1.1 Rail Station Building

##### Proposed Station Building Size

The proposed rail station building is significantly larger than the current Amtrak station on North Tryon Street. The proposed building is approximately 27,000 square feet in size on the concourse level (approximately 23,000 square feet in waiting areas and 4,000 square feet for support functions). Additional space would also be available on the plaza and mezzanine levels that could be used in the future for station or non-station functions.

The size of the concourse level within the proposed station is about four times as large as the current station building that is approximately 7,000 square feet in size, with a waiting room that is 5,100 square feet. In comparison, Raleigh Union Station, which is currently under construction, accommodates about 8,600 square feet of dedicated passenger area, with an additional 8,800 square feet of common area that may be used by rail passengers, in a 42,000 square foot building that will also include restaurants and other uses.

##### Future Ridership Assumptions

Appropriate station building sizing is a function of projected daily and peak-hour ridership. To ensure that potential rail service can be accommodated over the long-term, significant growth is assumed in base intercity ridership. In FY2015, approximately 185,000 passengers boarded and alighted. The Federal Railroad Administration estimates that future growth in these intercity services (the *Crescent*, *Carolinian*, and *Piedmont*) could result in ridership of up to approximately 428,000 annual boardings and alightings by 2045.

In addition to the base intercity ridership, future ridership would also increase with the initiation of proposed Southeast High Speed Rail service between Atlanta and Charlotte and extended service from Richmond and Raleigh. The Federal Railroad Administration estimates that over one million additional boardings and alightings would occur each year at CGS for these proposed high-speed services, associated with 26 additional round trips serving CGS.

Together, the potential growth in ridership for existing and planned intercity service, coupled with the potential ridership resulting from future Southeast High Speed Rail service, would result in nearly 1.5 million annual boardings and alightings at CGS.

CATS continues to study the potential for commuter rail service that would operate from CGS. Even if commuter rail services were to be initiated in the future, commuter rail ridership is not reflected in the basis for calculating the desirable station building size, because commuter rail passengers would be served by a separate platform that is not accessed through the main station building waiting room. Typically, commuter rail passengers also arrive “just in time” for their train, and would not spend long periods of time waiting nor would require other services like baggage handling.

##### Basis of Sizing and Calculated Space Requirements

To review station sizing needs, two methodologies were used:

1. Amtrak’s *Station Program and Planning Guidelines* (published May 2013); and
2. NCDOT Rail Division’s station sizing standards.

Amtrak’s station planning guidelines suggest that the necessary waiting room is modest in scale, even after accounting for the potential growth resulting from many new services. Based on the formulae contained in Amtrak’s guidelines, the necessary waiting room is about 8,000 square feet in size.

However, NCDOT recommends a much larger building size for passenger comfort and for future growth. NCDOT has reviewed waiting room sizes at each of the stations in North Carolina and graded the amount of space available based on square footage per passenger per train. The highest category has a waiting area of at least 125 square feet per passenger per train. Applying this methodology to the CGS vision concept (23,000 square feet in concourse level waiting area) and using the Federal Railroad Administration’s projections for almost 1.5 million boardings and alightings and 32 daily round-trip trains in 2045, there would be approximately 168 square feet of waiting space available per passenger per train. The resulting space ranks in the highest category of NCDOT’s scale.

Furthermore, local stakeholders also desire a “monumental” station that is significant in size. The station building is intended to be at least 3 floors in height, with high ceilings, atriums, and functional spaces on the upper levels that could total 6,000 – 10,000 square feet or more per level. The upper levels could also include access to an outdoor terrace area that would be ideally suited for special events.

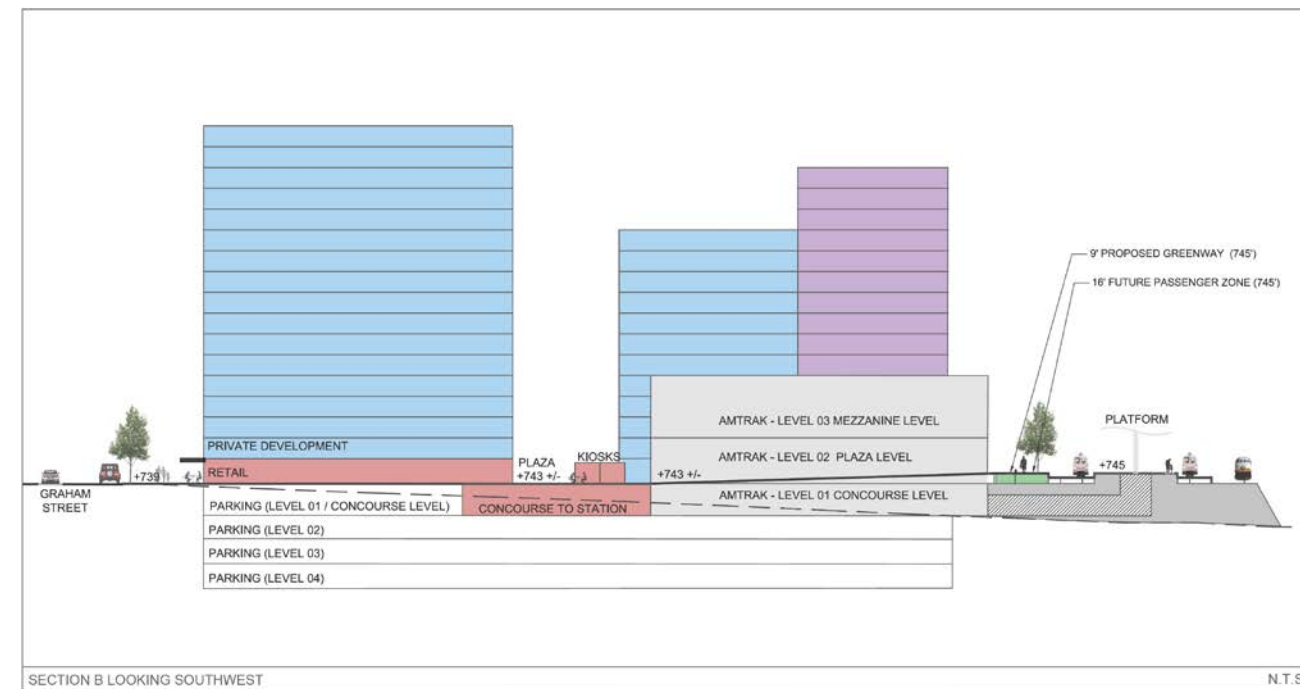
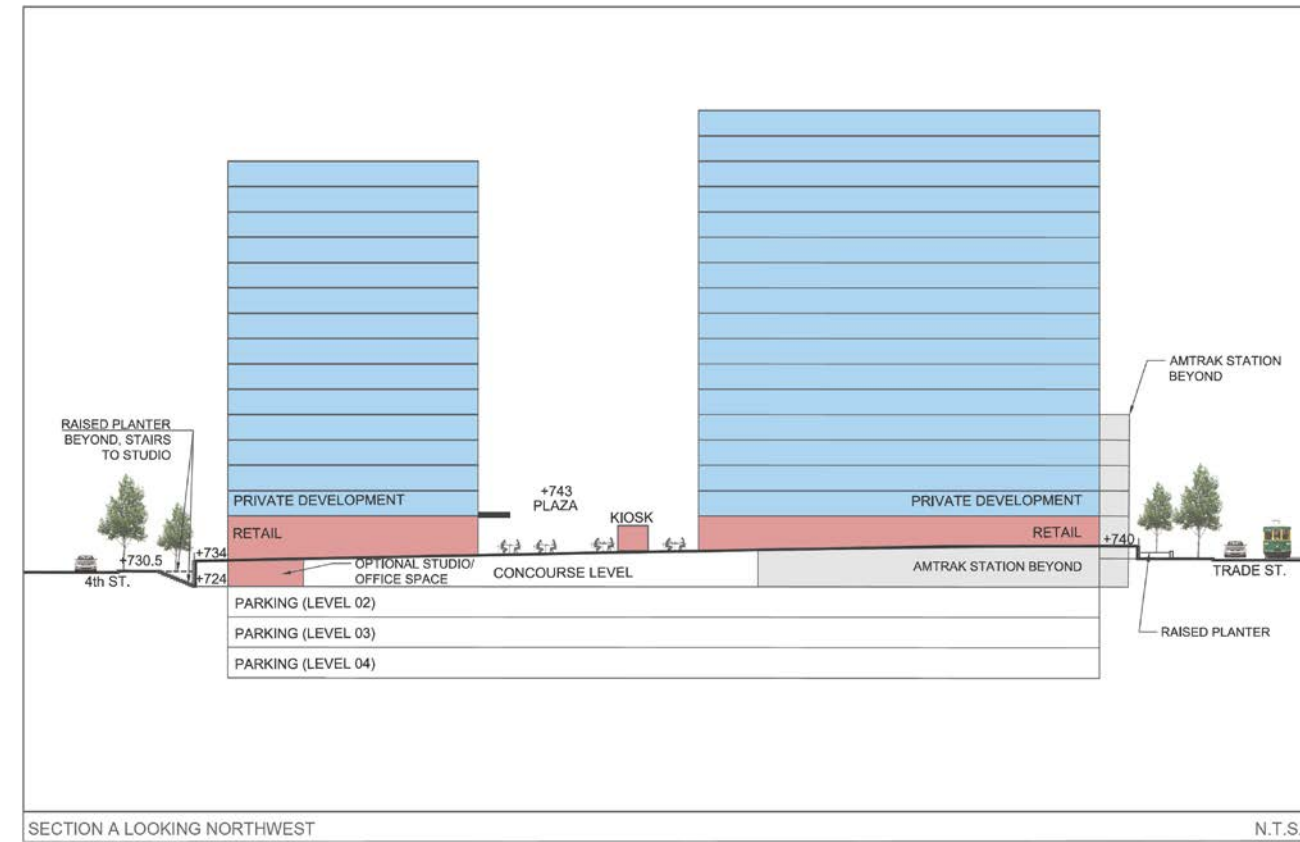
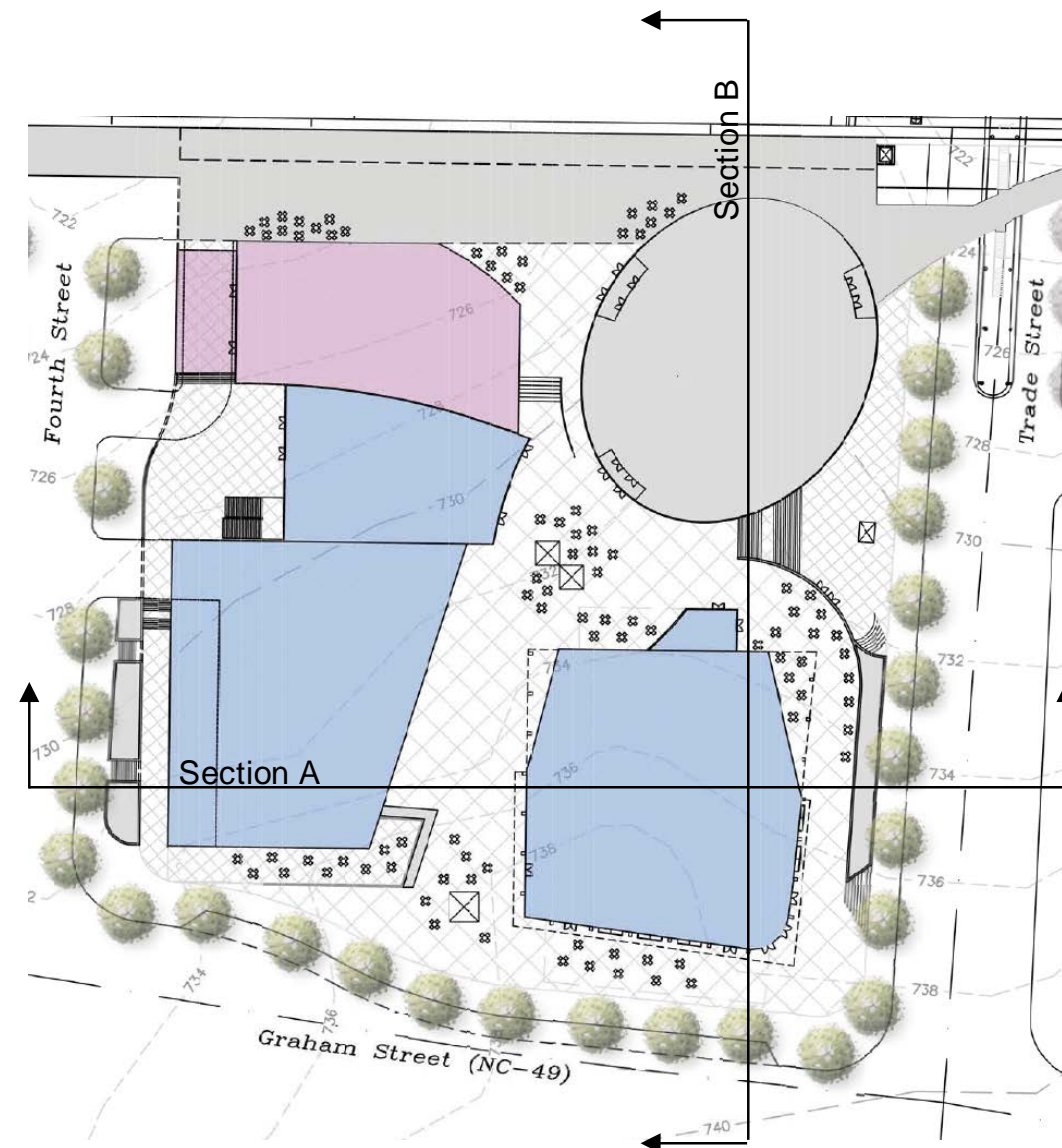
##### Site Suitability Conclusions and Options for Future Growth

Based on the Amtrak and NCDOT guidelines, the conceptual station size as illustrated in this vision is more than adequate to provide a comfortable waiting experience for passengers well into the future, even if a significant increase in passenger rail traffic were to occur.

Although the station building is larger than needed for immediate passenger loads and operations, it is intended to be scalable such that additional space on upper (plaza and mezzanine) levels could be used for station functions if and when it is needed. Initially, only the concourse level is needed for passenger operations. As such, the upper levels would not need to be fully finished during initial station construction, thus saving construction costs. As an alternative, the plaza and mezzanine levels could be finished for non-station purposes (such as office, restaurant, or meeting space uses). Stakeholders were drawn to the urban “living room” at Denver Union Station, and the CGS concept design provides an ideal layout for a similar space on the upper floor(s).



Figure 16: Main Block Sections



Source: ColeJenest & Stone, Bergmann Associates



## Layout

The rail station building is located on the south side of Trade Street, adjacent to the rail corridor. The station is situated here because of the location of the pedestrian tunnel access to the platform (see **Figure 17**), as well as the frontage of the building on Trade Street.

The rail station would include a prominent entry / exit at Trade Street at the concourse level on the north side of the building, and another primary entry/exit at the ground floor parking level (the concourse level) on the south side of the building. Multiple entrances at the plaza level (above the concourse level) provide access to the station building from the open-air plaza as well as from the greenway. Internal vertical circulation connects the various levels within the station building.

It is intended that an interior, conditioned passenger concourse would connect the station building to the private development building at the corner of Trade Street and Graham Street, allowing passengers to easily walk between the two buildings (see Section B in **Figure 16**) for additional retail and restaurant opportunities available in the private development building, as well as interior access to the station building from the corner of Trade Street and Graham Street.

### 5.3.1.2 Private Development

## Sizing

Anticipated private development on the Main Block could consist of primarily office uses with ground floor retail in multiple buildings. A potential hotel site has also been identified, at the southwest corner of the block next to Fourth Street and facing the rail corridor. Residential uses are not anticipated on the Main Block, given the emphasis on residential uses on other blocks in the Station District and recognizing the desire for office and retail space.

The suggested private development is high-density in nature. A formal market analysis was not conducted as part of this MSAP; however, suggested uses and densities are based on feedback from stakeholders (including representatives of the development community), coupled with a site analysis of the densities that could be supported with on-site parking. The primary private development buildings are shown as being 15-17 stories in height.

Building heights were programmed based on the ability to accommodate parking on the Main Block for on-site development (based on local Uptown Mixed Use District (UMUD) standards). Development at even higher densities could be accommodated if off-site parking (allowed by UMUD code) is also used to support the development.

## Layout

Footprints for the private development buildings are located at the perimeter of the block. Access to all buildings would be available from the plaza level, as well as the concourse level underneath. The private development buildings will extend downward to include parking lobbies on the concourse level and subsurface parking levels. As such, a pedestrian connection will also be available between the station building entrance on the south side of the building and the other buildings on the Main Block through the concourse level.

### 5.3.1.3 Outdoor Plaza

In addition to the buildings, an open plaza area in the middle of the block is envisioned. The plaza could include outdoor restaurant seating, kiosks, and outdoor gathering spaces for formal or informal activities. The plaza would be accessible from all sides of the block – at grade along Graham Street, via a “grand staircase” up to plaza level from the foot of Wilkes Place next to the station building entrance, and from the greenway along the rail corridor extending both to the north and south. Access through the private buildings toward Fourth Street would also be available.

### 5.3.1.4 Parking

Approximately 900 spaces are envisioned on four levels of subsurface parking (including the ground / concourse level). On-site parking was maximized at four levels based on local knowledge of likely soil conditions and awareness that five or more levels is less feasible. Other major local development projects locally typically include no more than four levels of subsurface parking. Approximately 200-250 spaces could be reserved for rail customers. As such, all designated parking for rail customers could be accommodated within the Main Block. For spatial analysis purposes, a total of 200 on-site spaces were assumed to be set aside for rail customers. The lower end of the specified range of 200-250 spaces was assumed for calculation purposes given the presence of the rail station as part of a larger multimodal hub. A more specific number of spaces will be defined as part of future design phases.

As noted above, off-site parking (within distance parameters) is allowed by local code, but market forces will dictate the locations and amount of parking. A significant amount of parking is also planned on the South Block to support Main Block development, and potentially other daily parking needs, given the amount of surface parking that will be displaced by the construction of CGS.

Parking is accessed only from Fourth Street. No vehicular access points are provided on Graham Street or Trade Street, recognizing the topography of the site and the desire to make it as pedestrian-friendly as possible. A service entrance is also provided on Fourth Street, along with hotel drop-off, should a hotel be included on the Main Block.

### 5.3.1.5 Transit

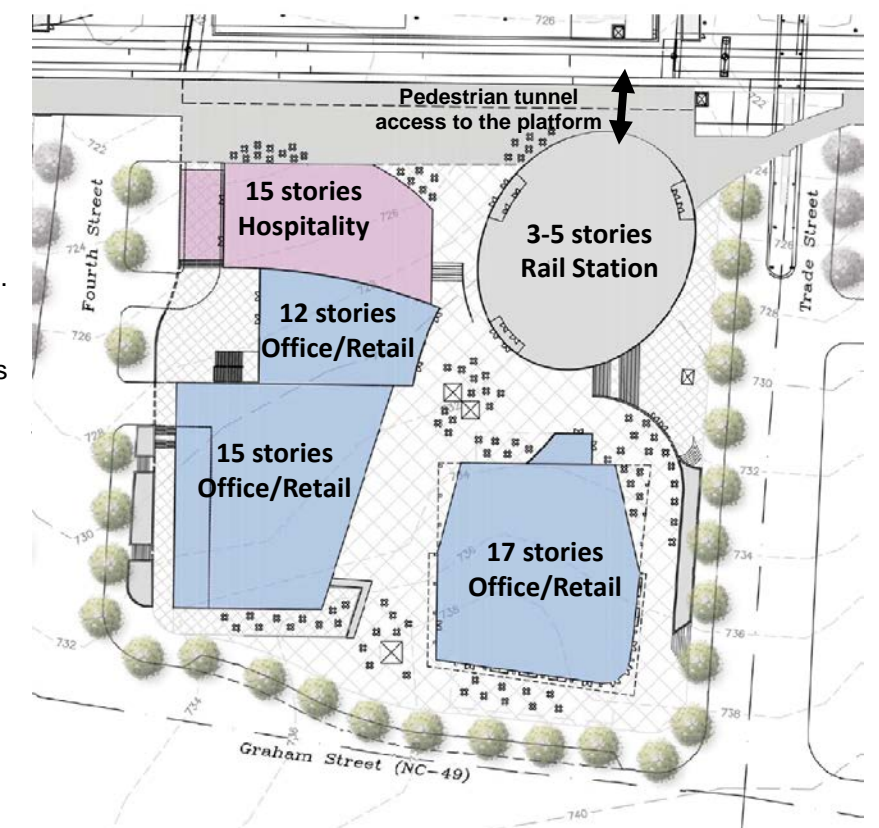
Local and intercity bus bays are sited on the South Block rather than on the Main Block. Preliminary concepts reviewed opportunities for a concourse-level bus facility on the Main Block, but a stronger overall station plan resulted from locating the bus facility on the South Block. See Section 5.9.1 for more information on the other concepts considered for the Main Block and the decision-making considerations that led to locating the bus facility on the South Block.

The CityLYNX Gold Line (streetcar) will have a station adjacent to the Main Block at Wilkes Place directly in front of the rail station building, creating easy transit access. Express buses are anticipated to stop on-street along Fourth Street on the southern edge of the Main Block.

### 5.3.1.6 Greenway

The planned greenway crosses the Main Block as part of a continuous route from Bank of America Stadium to Ninth Street. The greenway would run north-south across the Main Block adjacent to the rail corridor. The greenway would cross above Fourth Street on a bridge, and would use a portion of the plaza (at plaza level) as its path across the Main Block. A larger pedestrian bridge, tied to the rail station building architecture, would carry the greenway across Trade Street. The greenway zone is wide enough on the Main Block to accommodate a future side platform to serve the future third track. Enough width (approximately 25') is

**Figure 17: Possible Building Heights on the Main Block**





reserved in the vision concept to ensure that the future third track platform can be physically separated from the greenway path.

### 5.3.2 Parcel Requirements

The Main Block is owned by the City of Charlotte with the exception of the Greyhound parcel. The parcel currently owned by Greyhound has been identified as being necessary for track construction. NCDOT is in negotiations with Greyhound to acquire this parcel.

### 5.3.3 Space Allocation

The Main Block plan envisions multiple buildings, including the following components:

- 27,000 SF rail station building (concourse level upfit / initial operations)
- 16,000 SF (or more) rail station building expansion capability (on plaza and mezzanine levels)
- 850,000 SF private development (in multiple buildings)
- 900 +/- parking spaces on four levels of subsurface parking (200-250 reserved for train customers and the balance for Main Block private development-related needs)

### 5.3.4 Site Layout

**Figure 18, Figure 19, Figure 20, and Figure 21** illustrate Main Block conceptual site plans for the Plaza Level, Concourse Level, Parking Level 2, and Parking Levels 3 & 4, respectively. **Figure 22, Figure 23, and Figure 24** are conceptual floor plans showing the three proposed levels of the station building.



Figure 18: Main Block Site Plan (Plaza Level)

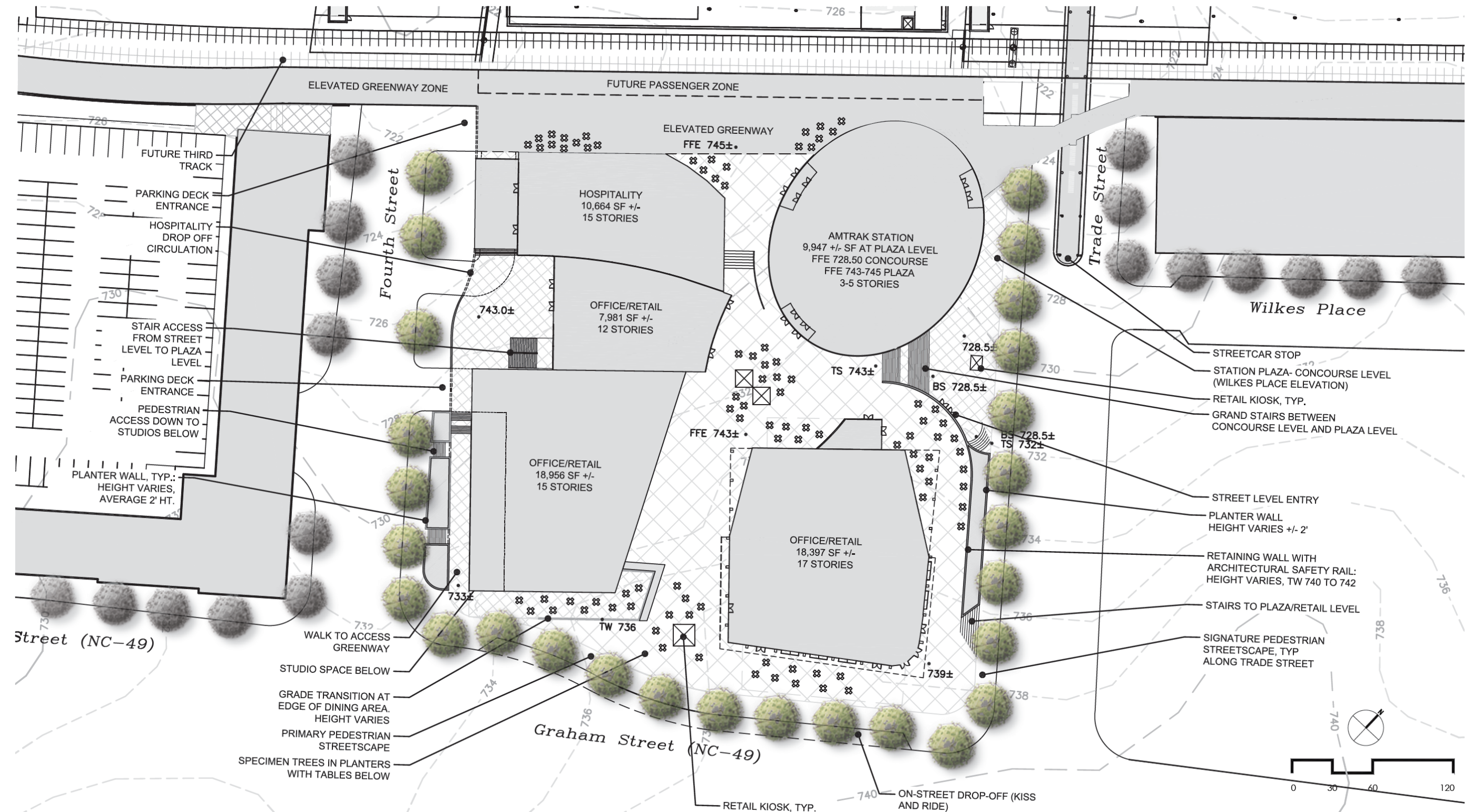




Figure 19: Main Block Site Plan (Parking Level 1 / Concourse Level)



Source: ColeJenest & Stone, Bergmann Associates



Figure 20: Main Block Site Plan (Parking Level 2)



Source: ColeJenest & Stone, Bergmann Associates



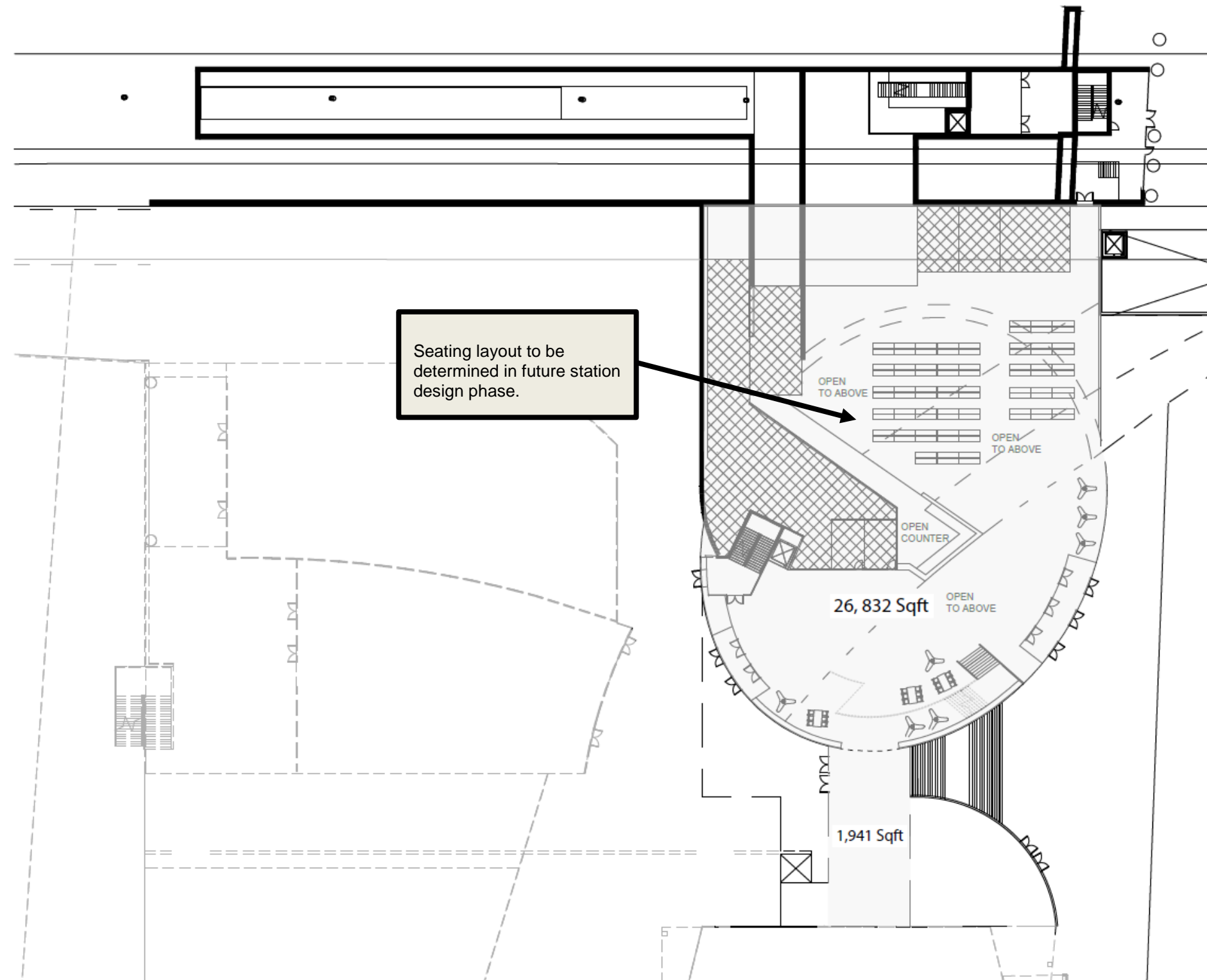
Figure 21: Main Block Site Plan (Parking Levels 3 & 4)



Source: ColeJenest & Stone, Bergmann Associates



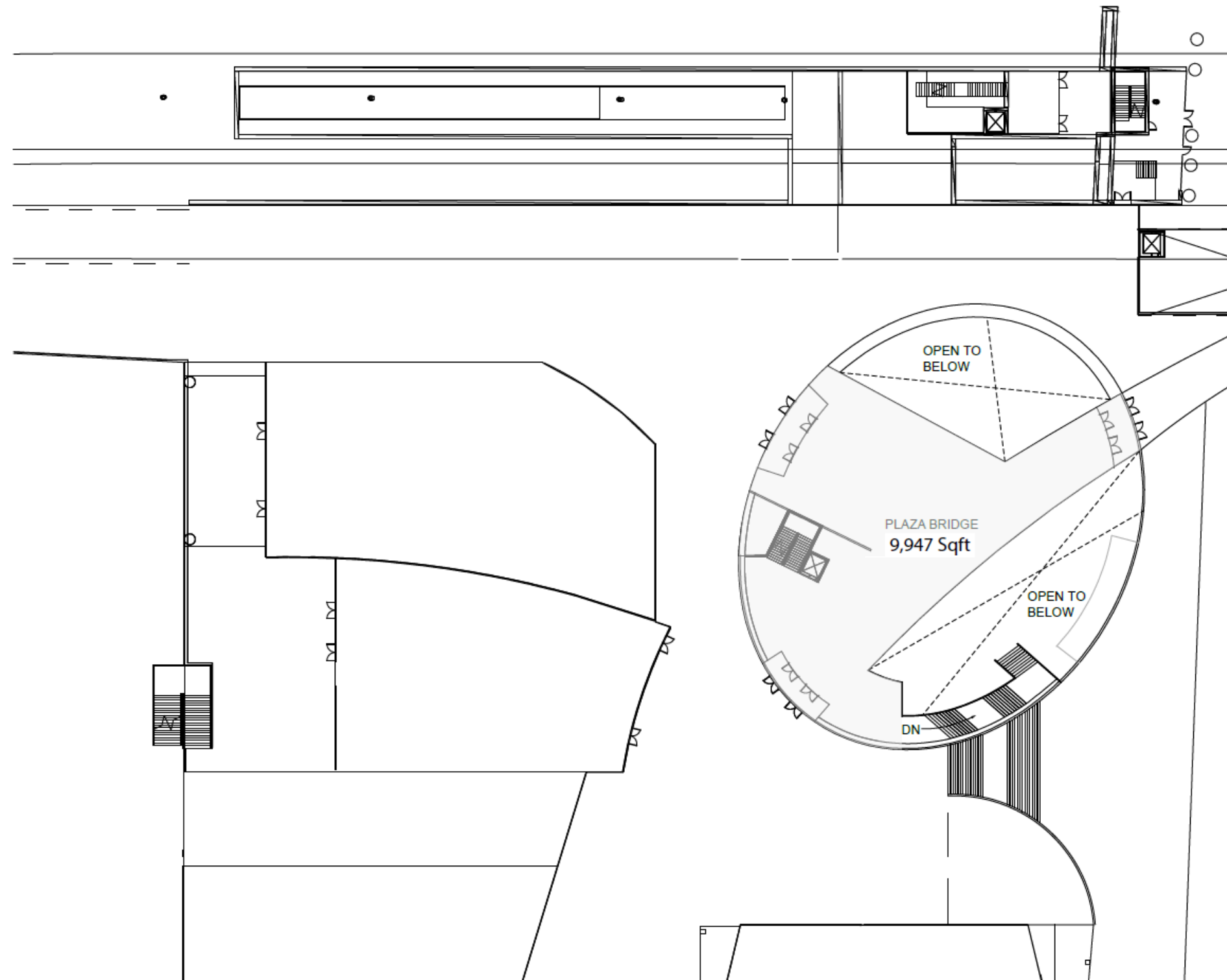
Figure 22: Rail Station Conceptual Floor Plan (Concourse Level)



Source: Bergmann Associates



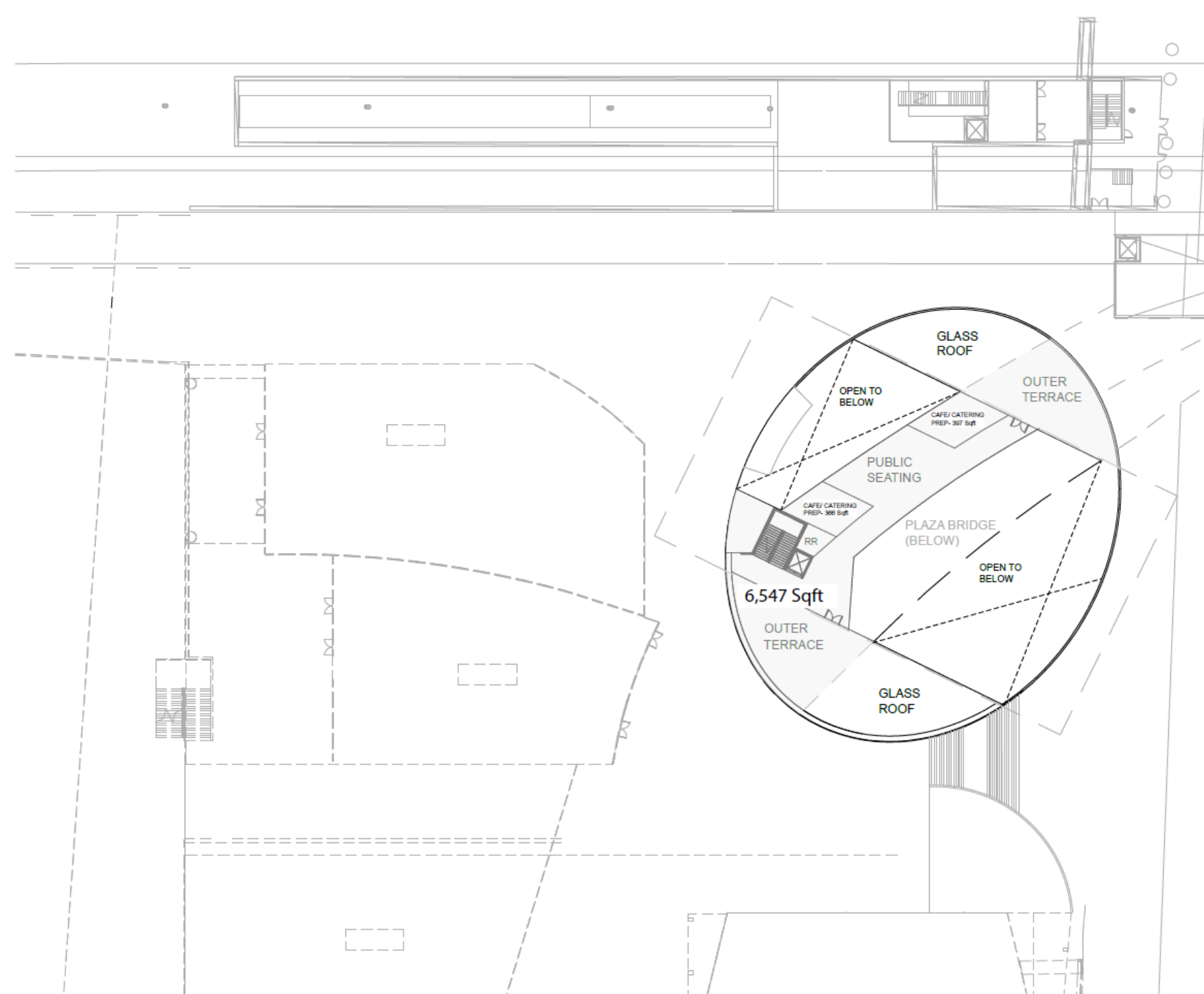
Figure 23: Rail Station Conceptual Floor Plan (Plaza Level)



Source: Bergmann Associates



Figure 24: Rail Station Conceptual Floor Plan (Mezzanine Level)



Source: Bergmann Associates



### 5.3.5 Design Intent

Figure 25: View of Main Block Looking South



Source: WSP, Bergmann Associates, ColeJenest & Stone



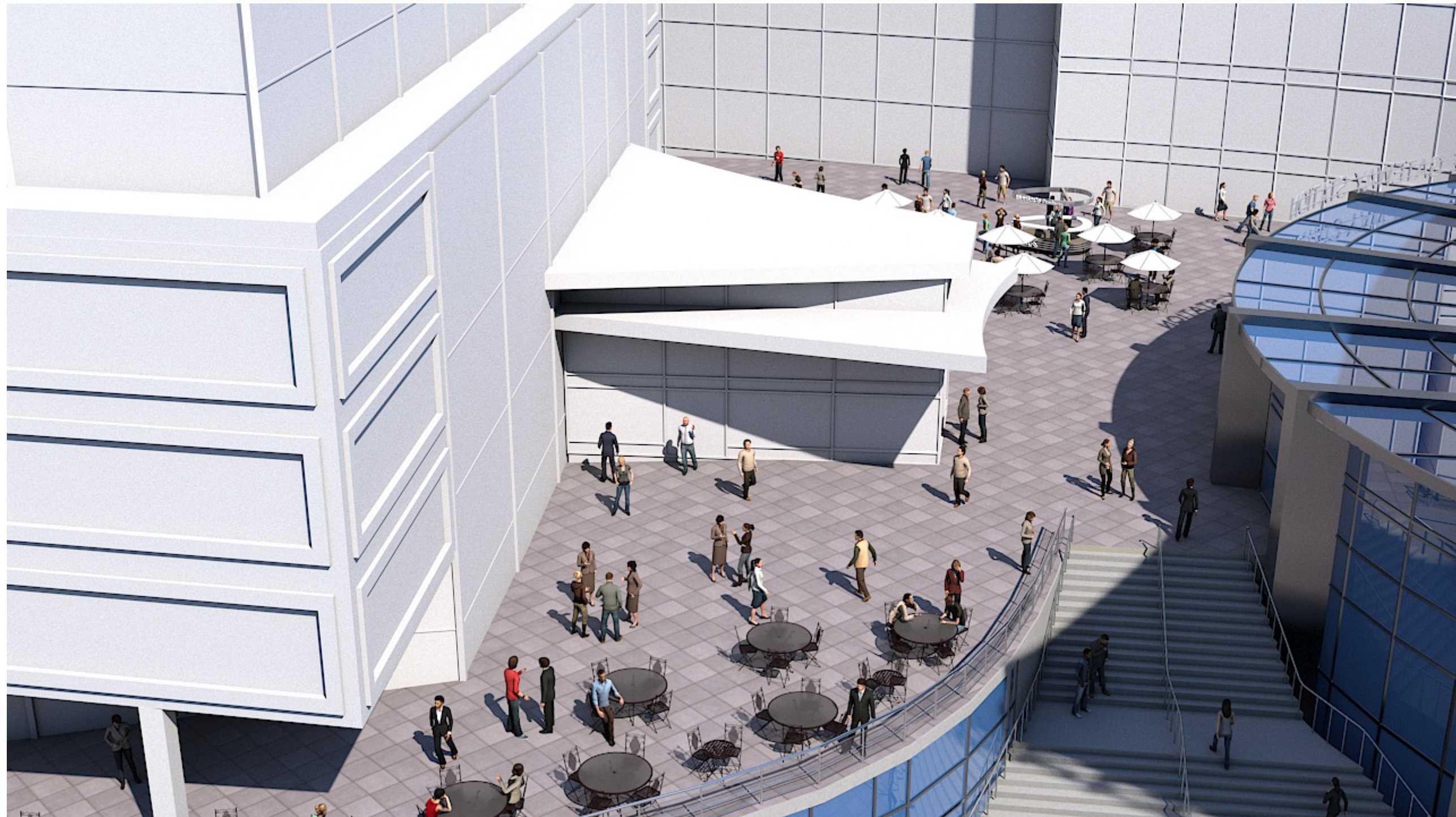
Figure 26: View of Rail Station Building Looking South from Wilkes Place



Source: WSP, Bergmann Associates, ColeJenest & Stone



Figure 27: View of Main Block Plaza



Source: WSP, Bergmann Associates, ColeJenest & Stone



Figure 28: View of Main Block Looking West from Fourth / Graham Intersection



Source: WSP, Bergmann Associates, ColeJenest & Stone



Figure 29: View Looking West on Trade Street into Station District



Source: WSP, Bergmann Associates, ColeJenest & Stone



## 5.4 South Block

### 5.4.1 Site Components

The South Block is intended to accommodate a local and intercity bus facility, including bus berthing areas as well as indoor waiting areas. The facility as illustrated could accommodate six intercity buses plus two ready slips, along with five local (CATS) buses. Buses enter the facility via Third Street, and exit the facility onto Fourth Street.

The bus facility would be located on the ground floor of a parking garage, which is sized to accommodate South Block parking needs, but also potentially a portion of Main Block parking needs. This MSAP proposes a seven-level garage. If a portion of the Main Block parking needs can be accommodated on the South Block, higher densities of development on the Main Block could be achieved. Bi-directional ramps access the garage from Third Street and from Fourth Street. A short pedestrian bridge would connect the second level of the parking garage to the elevated portion of the greenway along the rail corridor, thereby eliminating many pedestrian crossings of Fourth Street.

This MSAP further proposes to wrap the garage on the Graham Street and Fourth Street sides with an eight-story residential building. The parking requirement for the residential building is approximately 250 spaces, leaving 600-650 spaces available to support Main Block development. The ground floor of the wrap building is intended to be retail space.

### 5.4.2 Parcel Requirements

The South Block layout shown here assumes use of both NCDOT Parcel "B" as identified in **Figure 2** as well as the parcel currently owned by Mecklenburg County on the eastern half of the block. An alternative layout that does not require use of the Mecklenburg County parcel is shown in Section 5.8.2.

### 5.4.3 Space Allocation

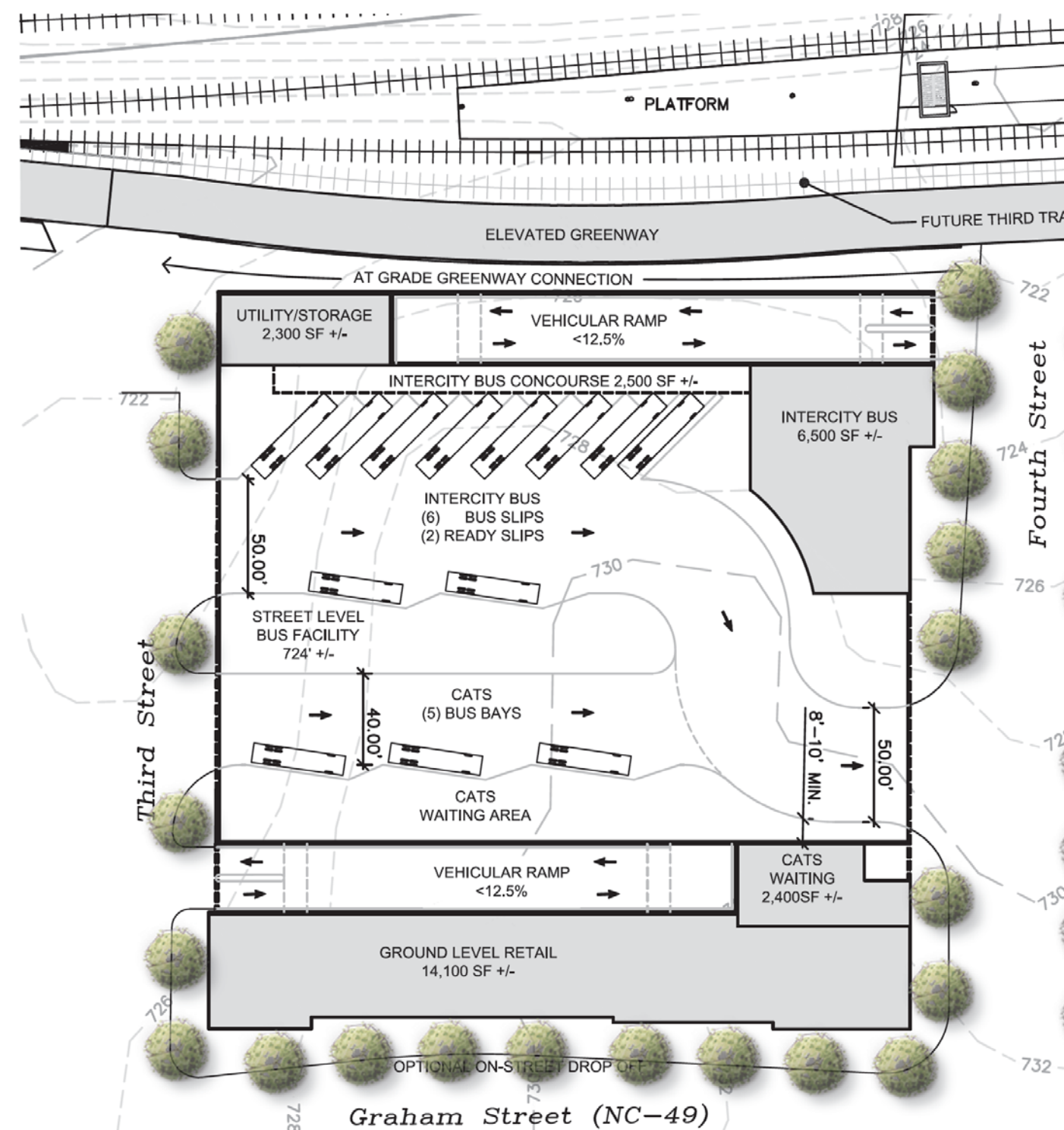
The South Block plan envisions an eight-level structure, including the following components:

- 6,500 SF intercity bus waiting room / operations facility
- 2,400 SF CATS waiting area
- 2,300 SF storage room
- 14,100 SF retail (ground floor on Graham Street side)
- 200 +/- residential units on Levels 2-8
- 850-900 +/- parking spaces on six levels of parking deck (250 for south block/600-650 for Main Block)

### 5.4.4 Site Layout

**Figure 30, Figure 31, and Figure 32** illustrate conceptual site plans for South Block Level 1, Level 2, and Level 3-8, respectively. **Figure 33** is a section view of the South Block.

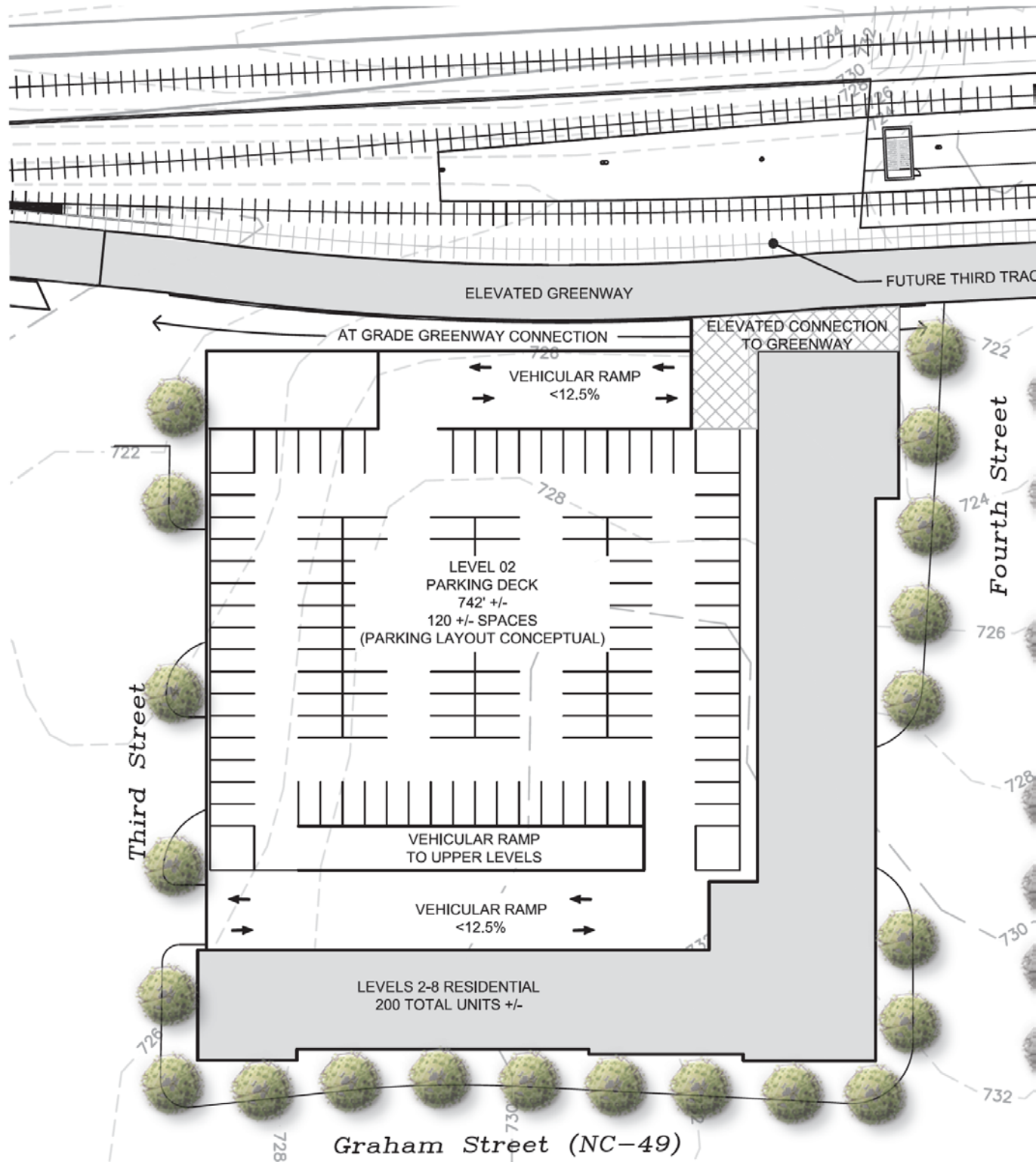
Figure 30: South Block Site Plan (Level 1 - Ground Floor)



Source: ColeJenest & Stone

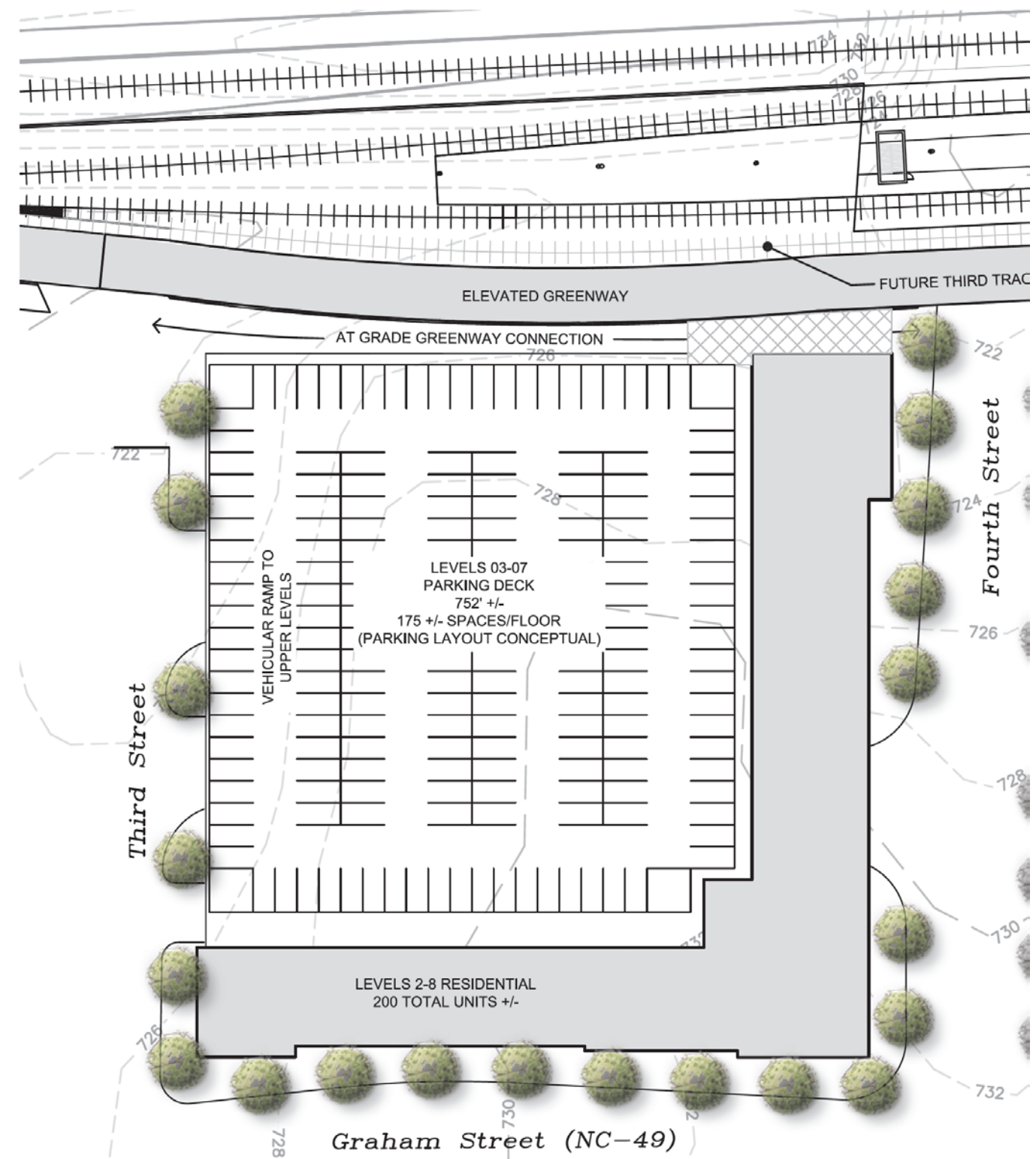


Figure 31: South Block Site Plan (Level 2)



Source: ColeJenest & Stone

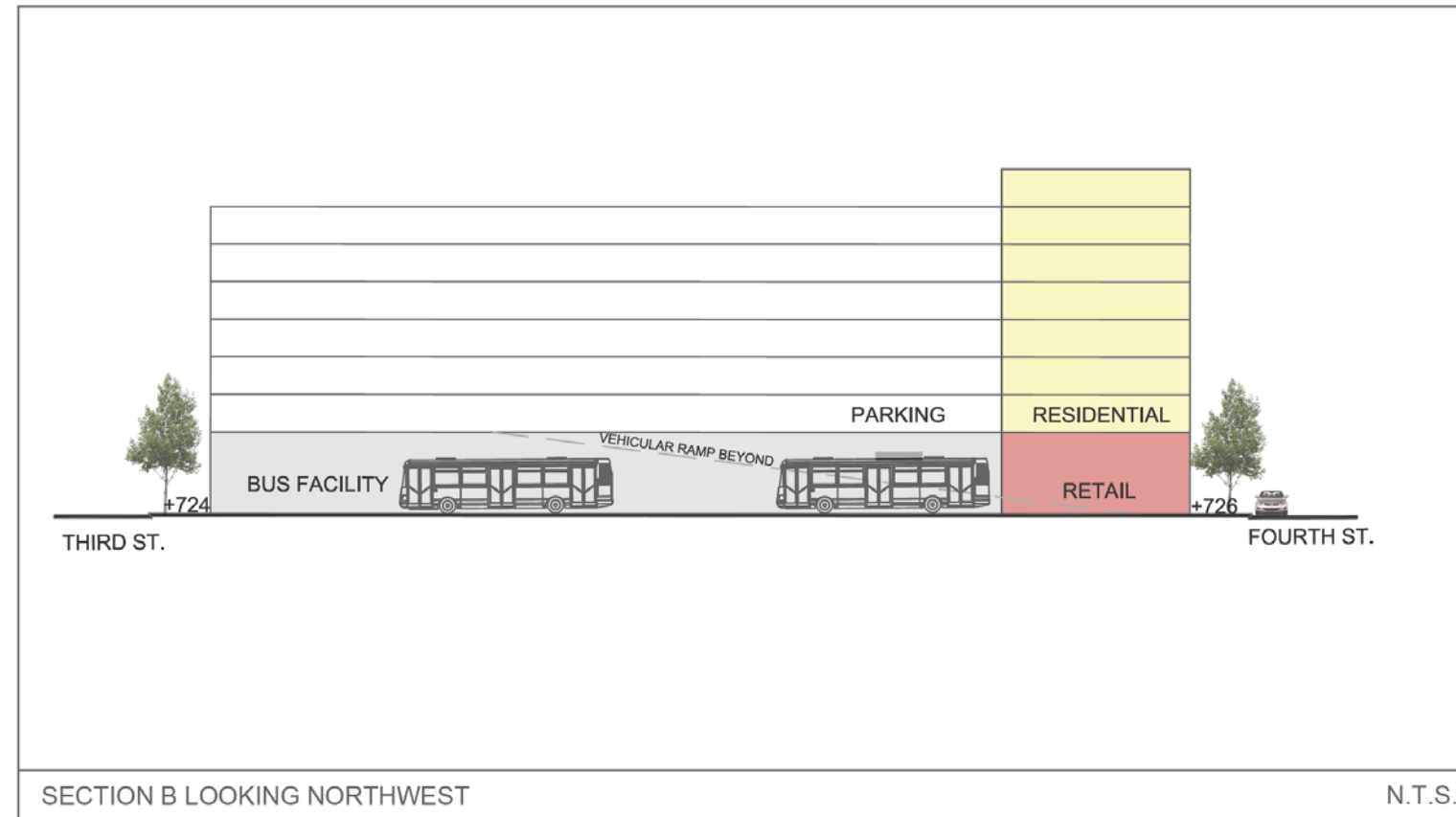
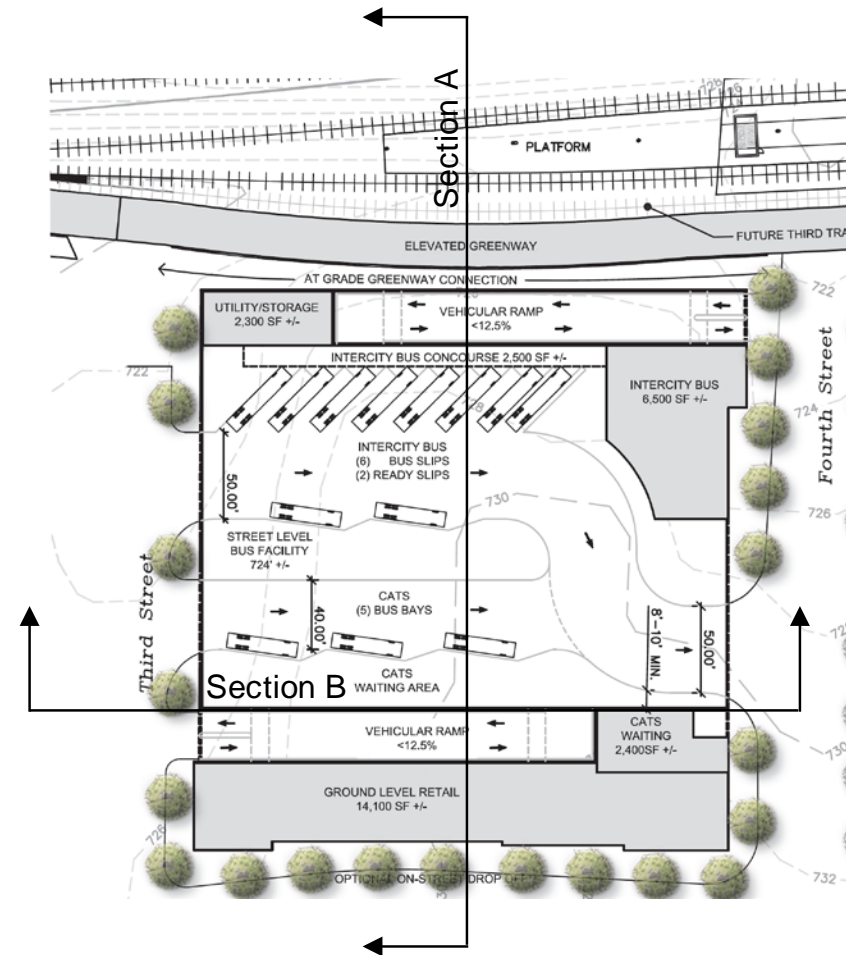
Figure 32: South Block Site Plan (Levels 3-8)



Source: ColeJenest & Stone



Figure 33: South Block Sections



SECTION B LOOKING NORTHWEST

N.T.S.



SECTION A LOOKING SOUTHWEST

N.T.S.

Source: ColeJenest & Stone



## 5.4.5 Design Intent

Figure 34: View of South Block Looking Southwest



Source: WSP, Bergmann Associates, ColeJenest & Stone



## 5.5 North Block

### 5.5.1 Site Components

The North Block is intended to accommodate a private development building, possibly a hotel with retail on the ground floor. The site is challenging for development because of the narrow width between Wilkes Place and the expanded rail corridor (accounting for the addition of the new station tracks, platform, and greenway).

The building could be 10- 12 floors in height. Special design considerations for noise and vibration abatement need to be incorporated given the proximity of the building to the railroad tracks, though the proposed greenway provides some level of buffer.

It is intended for the building to open onto Wilkes Place at the ground floor on the east side of the building. The building also would open onto the greenway one floor above on the west side of the building. The greenway is at the same elevation as the track platform, whereas Wilkes Place is at a lower elevation. These spatial relationships are illustrated through the section view in **Figure 37**. The second level, which opens onto the greenway, is a logical place for hotel amenities or meeting spaces. Retail without street access is not advised on the second level. From the second level, the greenway provides direct access across a pedestrian bridge onto the Main Block.

Parking for the North Block building would be accommodated in a subsurface parking garage accessed from Fifth Street. The garage would include approximately three subsurface levels, to be confirmed based on the parking requirements for the final building size to be determined in the future. If it is determined that subsurface parking is not viable at this location, above-grade parking with development above could be explored as well.

An on-street drop-off lane is included for Wilkes Place between Trade Street and Fifth Street. The drop-off lane would be primarily used for the on-site development, but could also be used for the Station District in general.

No transit activities are anticipated on the North Block itself; however, the CityLYNX Gold Line (streetcar) will stop on Trade Street at Wilkes Place, at the southern edge of the North Block. On-street bicycle facilities are being considered through separate efforts along Fifth Street and Sixth Street.

### 5.5.2 Parcel Requirements

The North Block layout shown here assumes use of NCDOT Parcel "D" as identified in **Figure 2**.

### 5.5.3 Space Allocation

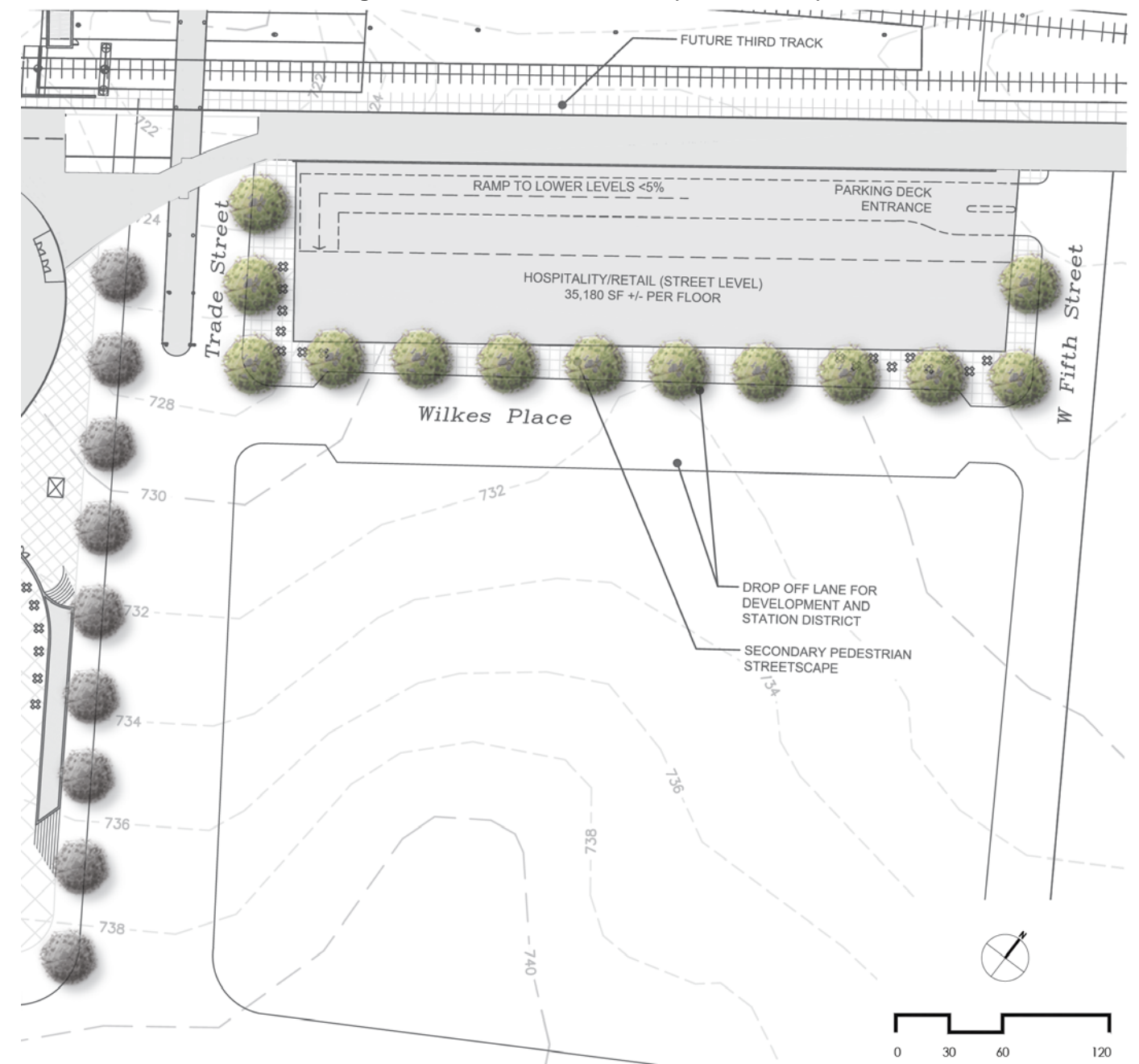
The North Block plan envisions a 10-12 level structure, including the following components:

- 387,000 SF hotel, including retail on the ground floor
- 400 +/- parking spaces on three levels of subsurface parking (or above-grade parking as an alternative)

### 5.5.4 Site Layout

**Figure 35** and **Figure 36** illustrate conceptual site plans for the North Block Ground Floor and Parking Level 1, respectively. **Figure 37** is a section view of the North Block.

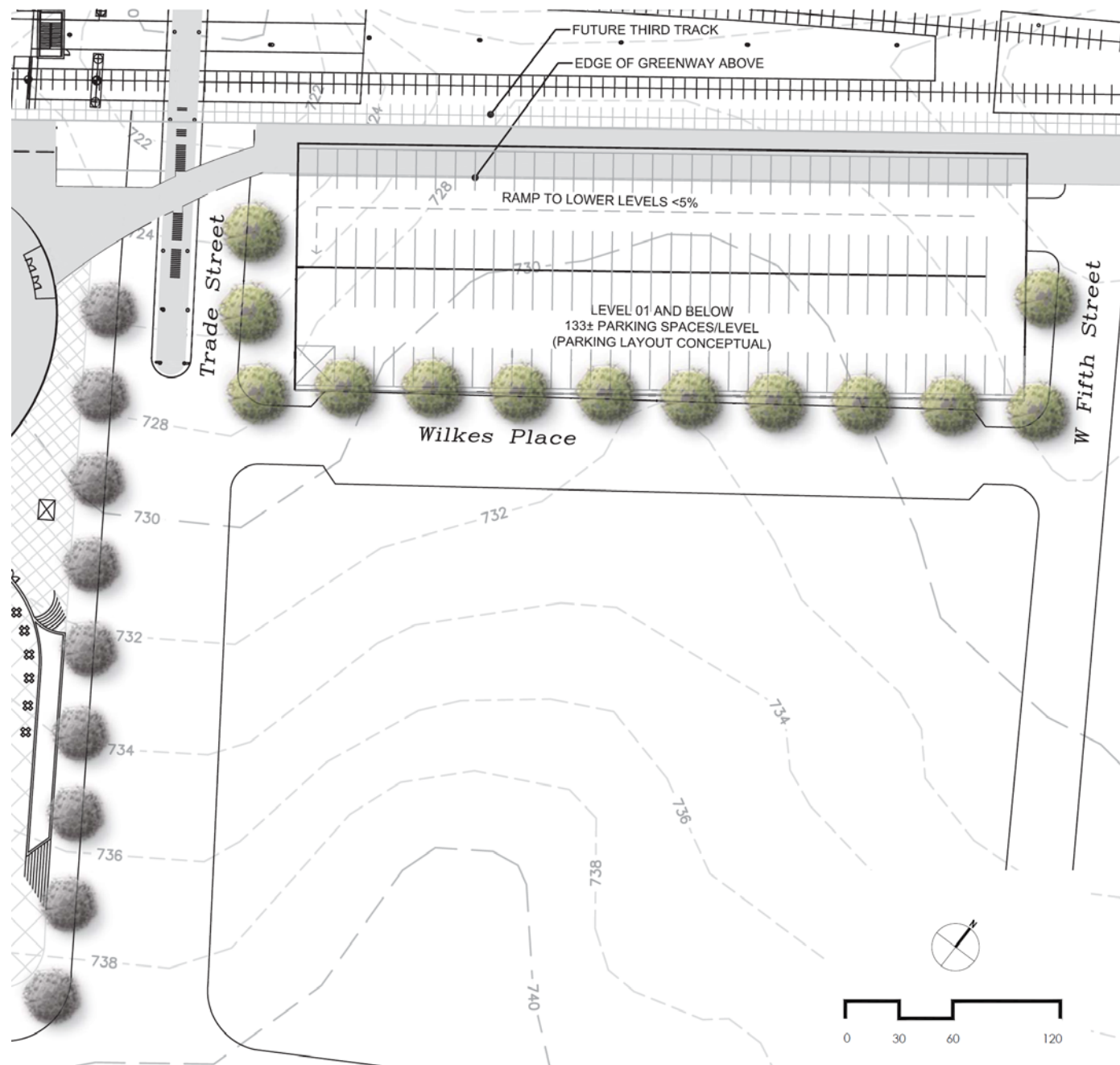
**Figure 35: North Block Site Plan (Ground Floor)**



Source: ColeJenest & Stone

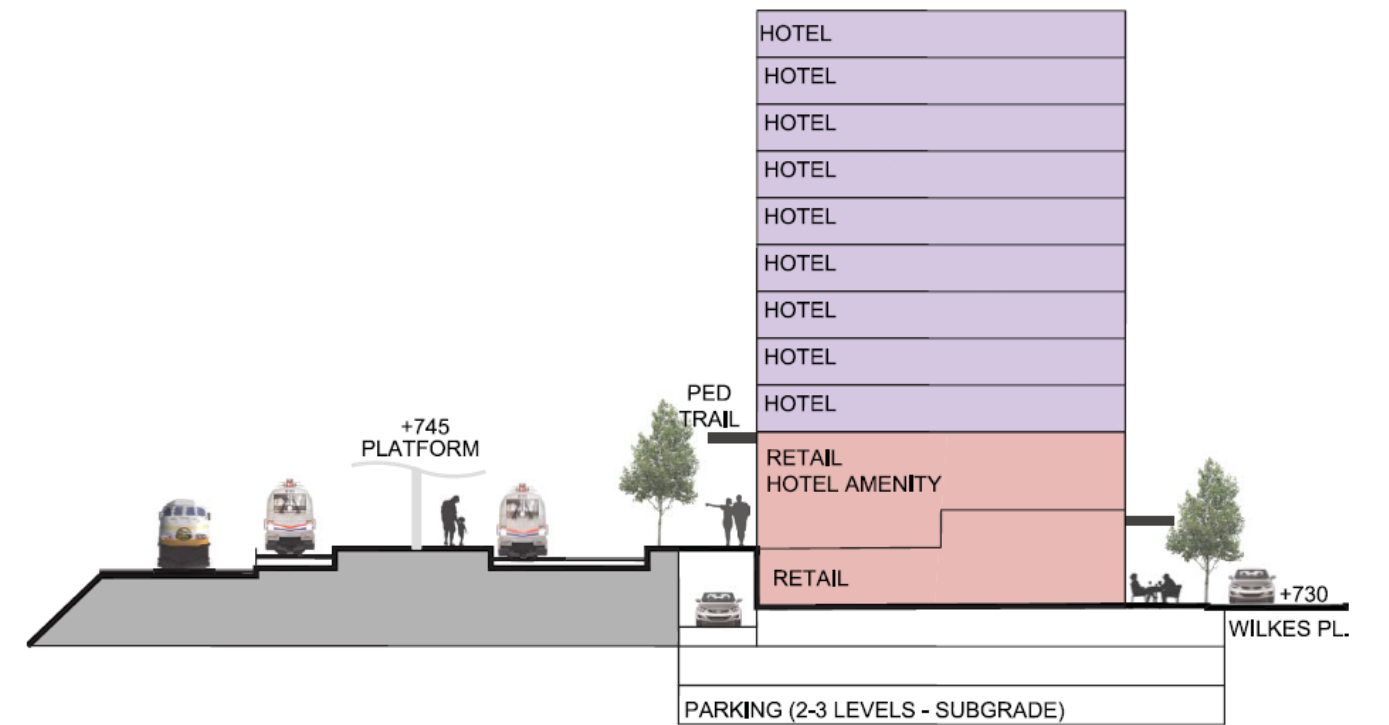


Figure 36: North Block Site Plan (Parking Levels 1-3)



Source: ColeJenest & Stone

Figure 37: North Block Section

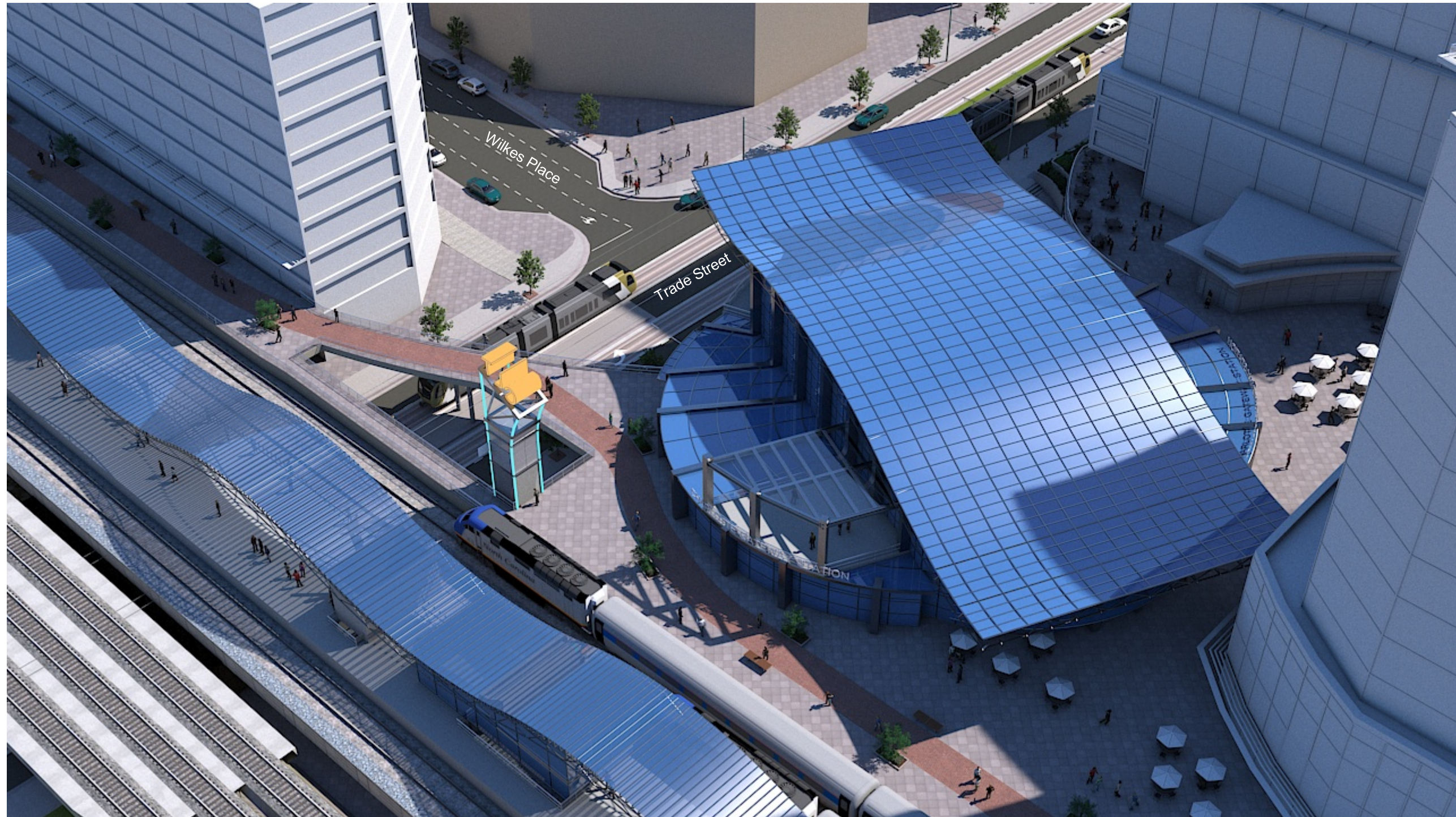


Source: ColeJenest & Stone



### 5.5.5 Design Intent

Figure 38: View of Proposed Development on North Block from Station Building



Source: WSP, Bergmann Associates, ColeJenest & Stone



Figure 39: View of North Block Looking South Toward Station Building



Source: WSP, Bergmann Associates, ColeJenest & Stone



## 5.6 Remote Blocks

### 5.6.1 Site Components

The “remote blocks” north of Fifth Street along the rail corridor are anticipated to house residential uses in mid-rise buildings. These blocks will have limited depth west of Smith Street. Even though the units would be in close proximity to the tracks, residential uses could be considered for these blocks if designed carefully. Office or retail uses may be less appropriate because of the lack of major street frontage.

Specific site plans were not developed for these blocks as part of this MSAP; however, the site depths were analyzed conceptually to confirm that private development would be possible on these blocks given the remaining space available after construction of the new track infrastructure. Although tight, it does appear that development would be possible. The proposed greenway corridor extending parallel to the rail corridor would provide a buffer between the

development buildings and the rail corridor and should increase the viability of uses on these blocks. As such, the greenway is viewed as a vital component of the ultimate development of the “remote blocks”.

### 5.6.2 Parcel Requirements

The remote blocks include NCDOT Parcels “E”, “F”, “G”, “H”, and “J” as identified in **Figure 2**.

### 5.6.3 Space Allocation

Specific site development concepts were not developed for the remote blocks. Residential uses are anticipated for most of the buildings, along with the linear development of the greenway.

### 5.6.4 Site Layout

**Figure 40** is an illustrative view of potential development sites on the remote blocks.

**Figure 40: View of Remote Blocks Development**



Source: WSP, Bergmann Associates, ColeJenest & Stone



## 5.7 Greenway

The proposed greenway extends from the southern portion of the Station District (near Bank of America Stadium) to Ninth Street at the northern limits of the District. The greenway generally follows the elevation of the rail corridor. The greenway would connect to the existing east-west pedestrian trail just north of Bank of America Stadium, then become elevated alongside the rail corridor through the heart of the Station District, returning to grade through the remote blocks to the north and then terminating at Ninth Street. Future extensions by others could examine opportunities to connect the greenway to the N. C. Music Factory.

The greenway would function as more than a single-use trail. There would be the opportunity for formal and informal gathering places along the corridor. The greenway design would provide direct access to future development on the Main Block, North Block, and remote blocks, along with a pedestrian bridge connection to the South Block parking garage. On the Main Block, the greenway would be integrated into the plaza level, providing direct access to the rail station building as well as to the central plaza on the Main Block.

Given its location, the greenway would serve as an important transportation corridor, particularly as an alternative to the automobile-oriented Graham Street. The greenway would provide fans with a direct pathway to Bank of America Stadium from the Main Block rail station. The greenway would also provide important grade-separated pedestrian connections from the South Block and North Block onto the Main Block. In this way, the greenway would function as a conduit for both short-distance (1-2 blocks) and longer-distance pedestrian / bicycle trips.

The greenway itself is envisioned as a 10-12' wide paved pathway but the greenway zone is wider to include additional space for gathering areas and connections to adjoining properties. On the Main Block, the greenway zone would have sufficient width (approximately 25') to also accommodate a future side-loading third-track platform that can be physically separated from the greenway. Details developed in future design phases will further clarify clearances and requirements.

Vertical circulation would be provided between the elevated greenway and street level at street underpasses (Fourth Street, Trade Street, Fifth Street, and Sixth Street). An accessible ramp would connect the elevated greenway and street level south of Fourth Street. Similar facilities could be considered north of the Main Block at Fifth Street or Sixth Street as well.



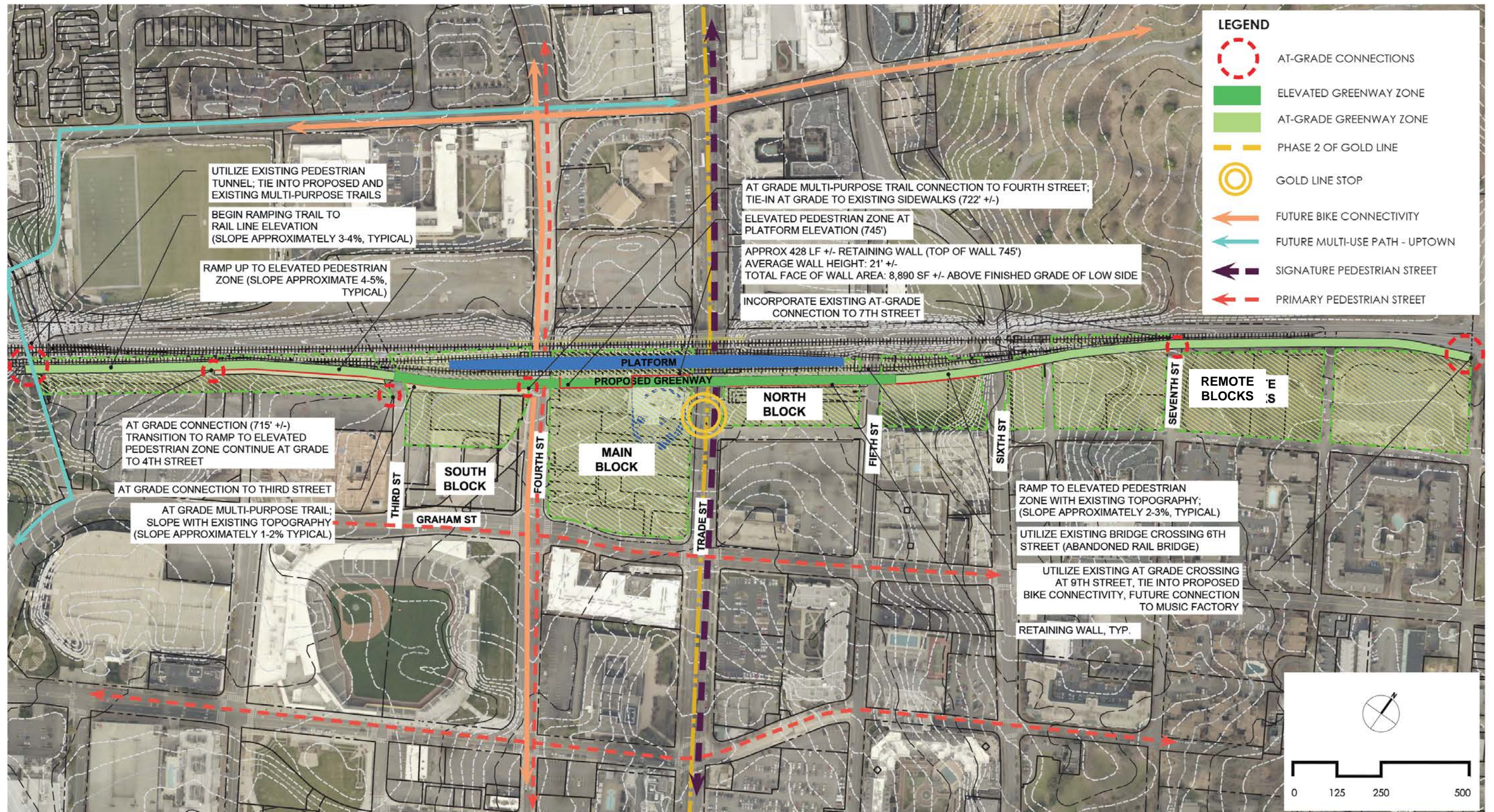
*The High Line in New York City is a popular elevated greenway.*  
Source: Wikimedia



*The Rose Fitzgerald Kennedy Greenway in Boston features a market area.*  
Source: Wikimedia



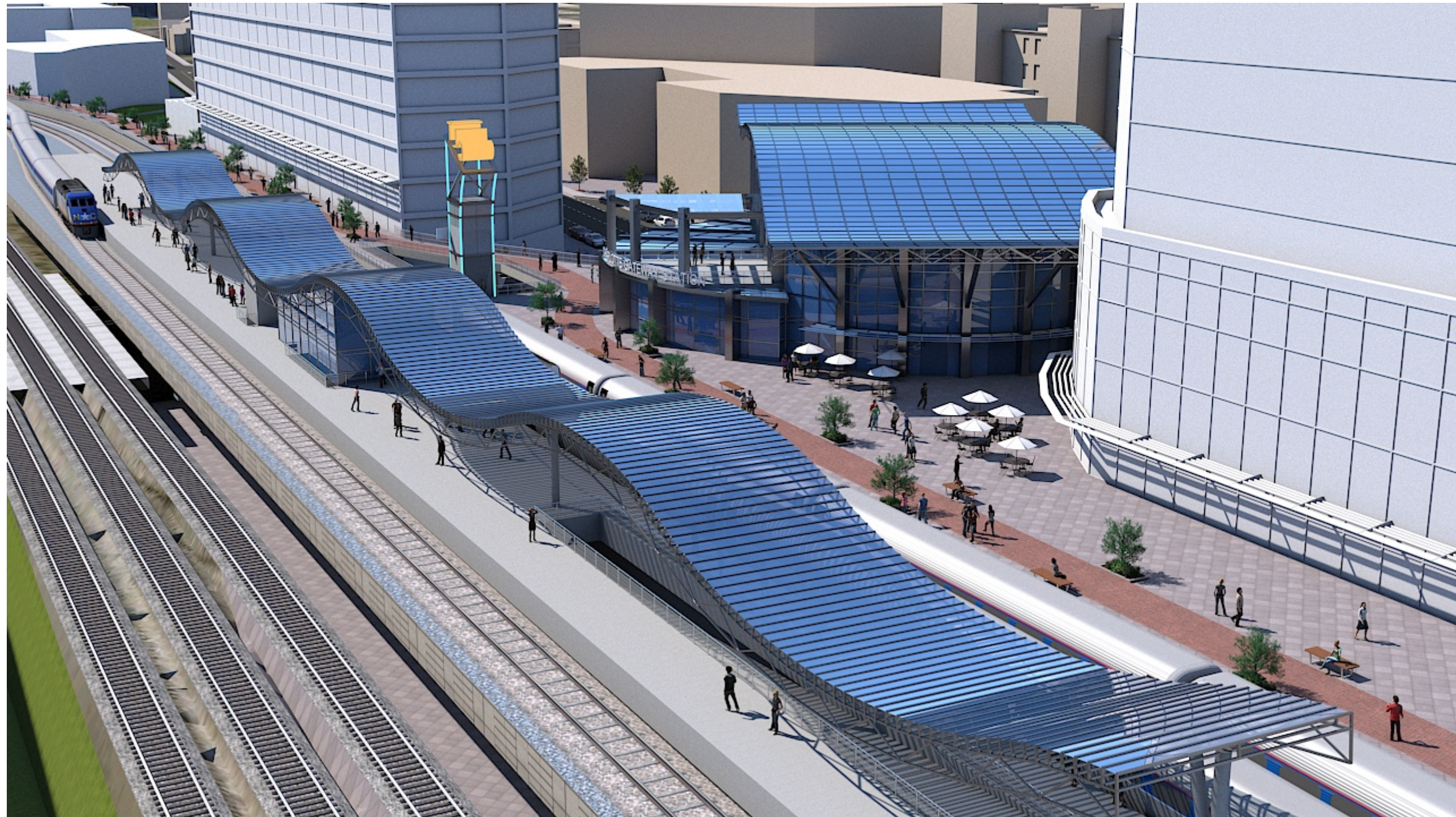
Figure 41: Greenway Concept



Source: ColeJenest & Stone



Figure 42: View of Greenway Crossing the Main Block at Plaza Level



Source: WSP, Bergmann Associates, ColeJenest & Stone



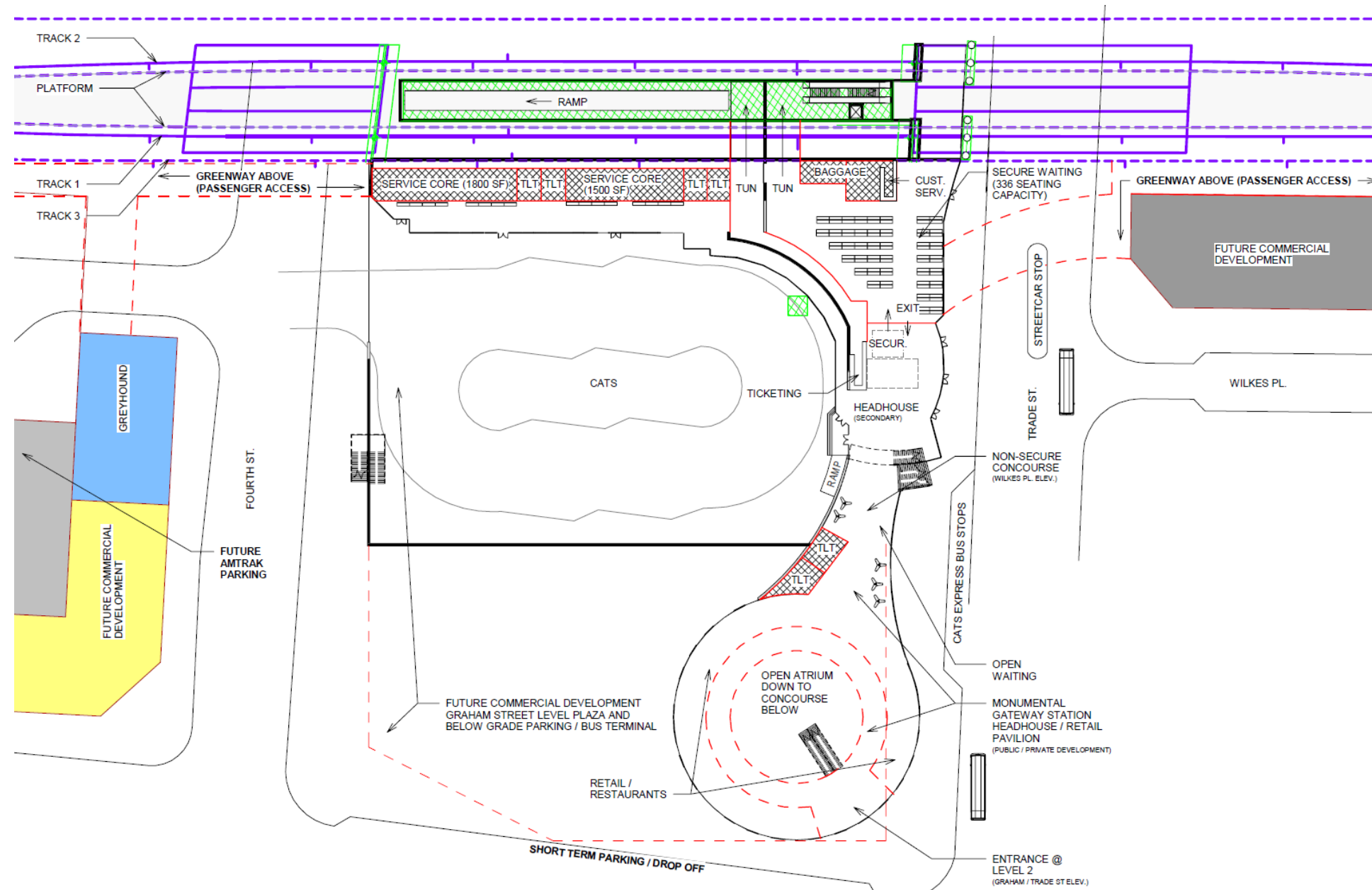
## 5.8 Other Concepts Considered

The vision presented in this MSAP represents the results of an iterative process that examined numerous development concepts, particularly on the Main Block and the South Block, where the primary modal facilities are located.

### 5.8.1 Main Block

Prior to the final version, previous iterations of the Main Block layout included a CATS and intercity bus facility located on the concourse level of the Main Block itself. The bus facility would be accessed from Fourth Street, similar in concept to how the concourse-level parking area is depicted in the final version. Being on the concourse level, the bus facility would have been largely out of view (underneath the plaza level). With a bus facility on the Main Block, all modal connections would have been located on the same block, which is attractive from a user-friendliness perspective. A site plan showing the concourse level under this scenario is shown in **Figure 43**, and a conceptual perspective is shown in **Figure 44**.

Figure 43: Alternate Main Block Concept - Bus Facility on Main Block (Site Plan)



Source: Bergmann Associates



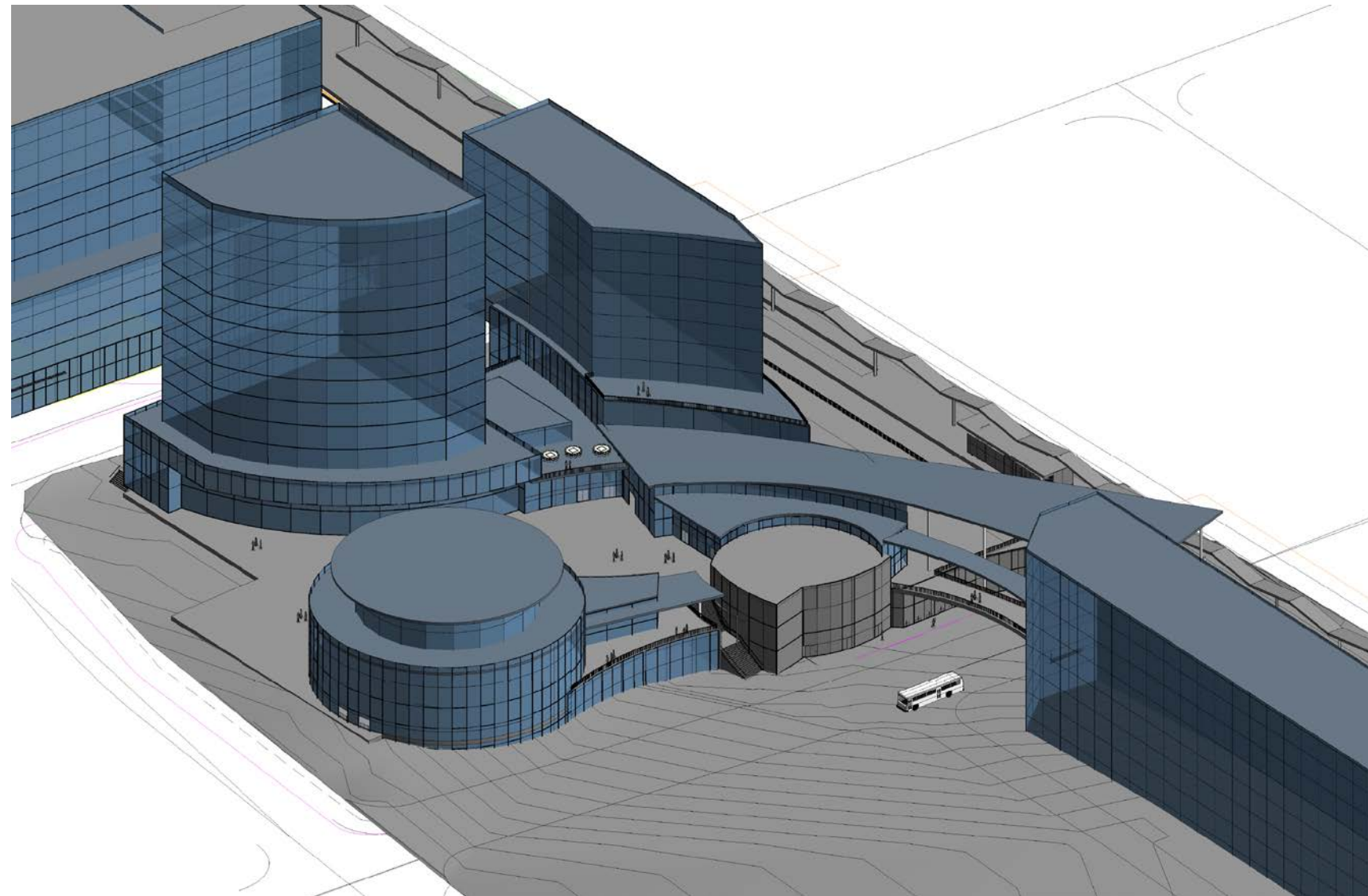
The bus facility may be situated within the Main Block, but the following challenges will need to be considered:

- The rail station building may be constrained by the bus facility, resulting in a station building that is not as substantive and “iconic” as desired by stakeholders.
- The bus facility will utilize much of the space that could otherwise be used for parking on the Main Block, yet on-site parking is critical to serve the rail customers as well as the private development on the Main Block. If additional parking space is available, rail customers should have better access to the station building and more intense on-site private development can be supported.
- Removal of the bus facility from the Main Block also creates the opportunity for passenger drop-off and pick-up immediately adjacent to the rail station entrance on the concourse level. Having close-by access for passenger drop-off and pick-up is critical when considering station access.

- Vertical development on the Main Block may be more easily facilitated with no bus facility beneath that must maintain operations during construction of the vertical development.
- With no vertical development conflict between the public sector (bus facility) and private sector (vertical development) elements, a rail station building can stand on its own as an initial phase much more easily, and subsequent private sector development would have fewer conflicts during construction.

For these reasons, the decision was made to focus on a bus facility integrated into the South Block, with design treatments to create a logical and passenger-friendly connection between the South Block and the Main Block.

**Figure 44: Alternate Main Block Concept - Bus Facility on Main Block (Site Perspective)**



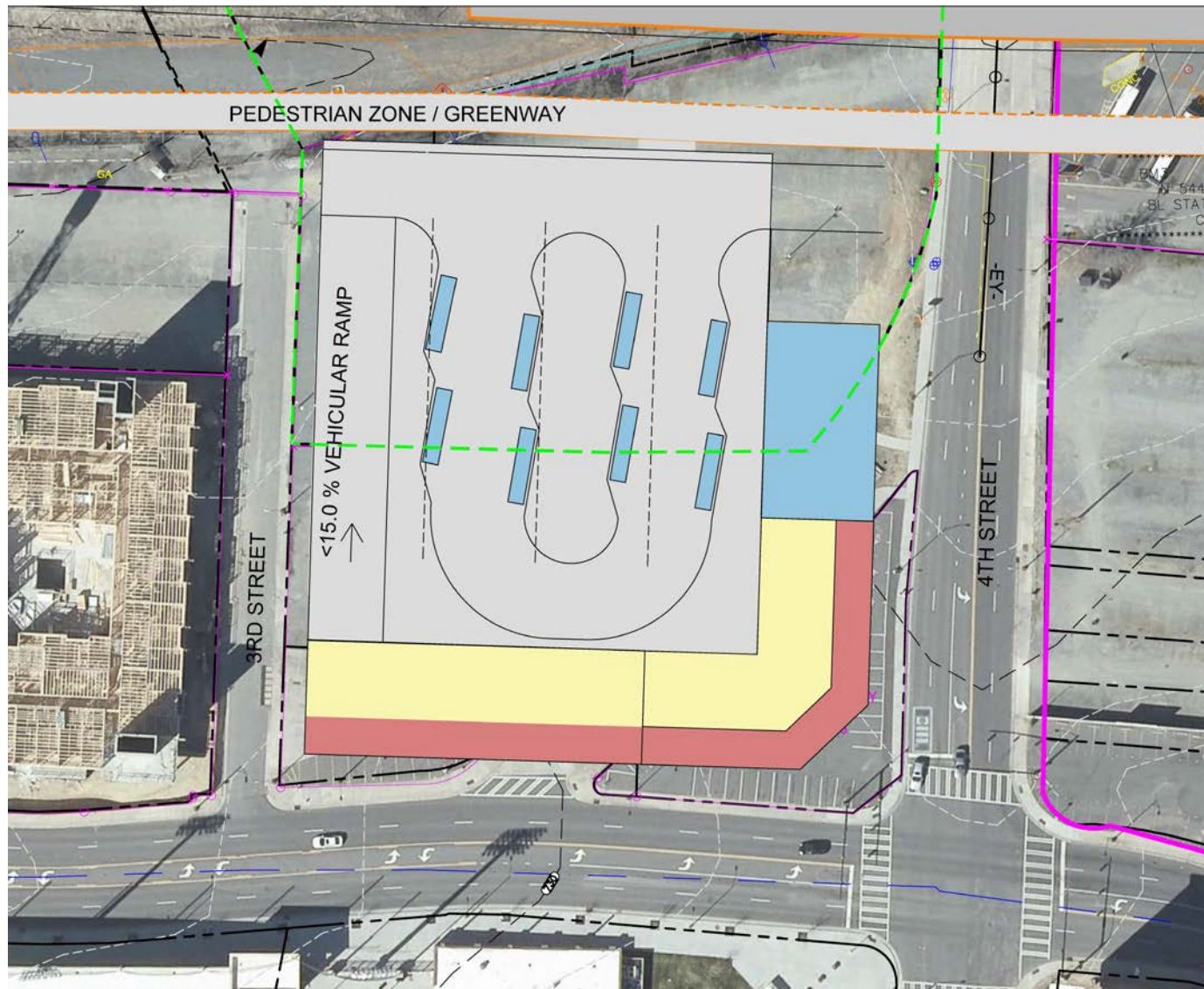
Source: Bergmann Associates



## 5.8.2 South Block

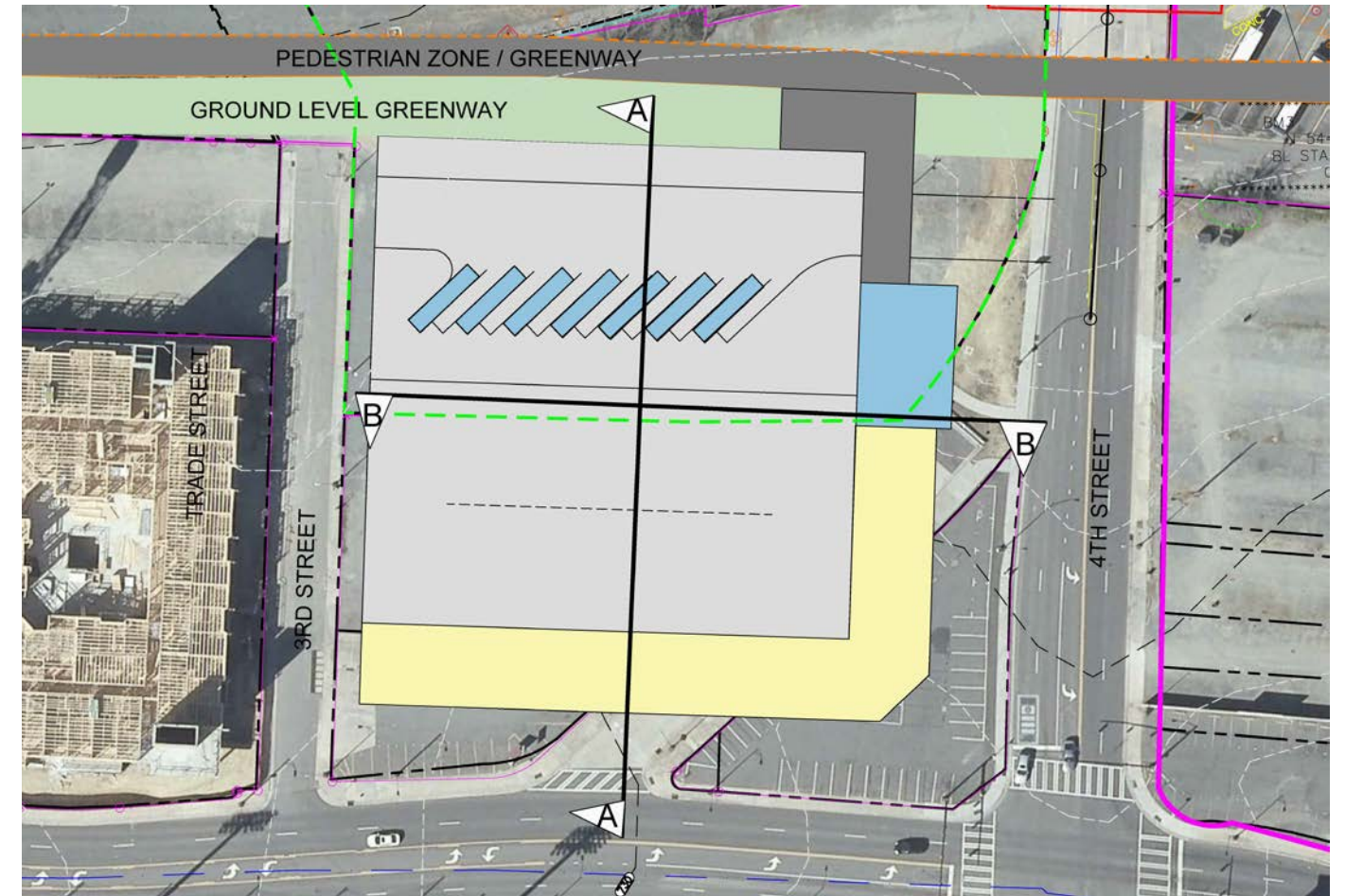
A series of conceptual alternate layouts were sketched for the South Block (see **Figure 45 - Figure 48**). None of these alternatives were refined to the same level of detail as the recommended layout; however, these are starting points for exploring different options should conditions and/or requirements change prior to site development.

**Figure 45: South Block Alternate - CATS Only (No Intercity Bus)**



Source: ColeJenest & Stone

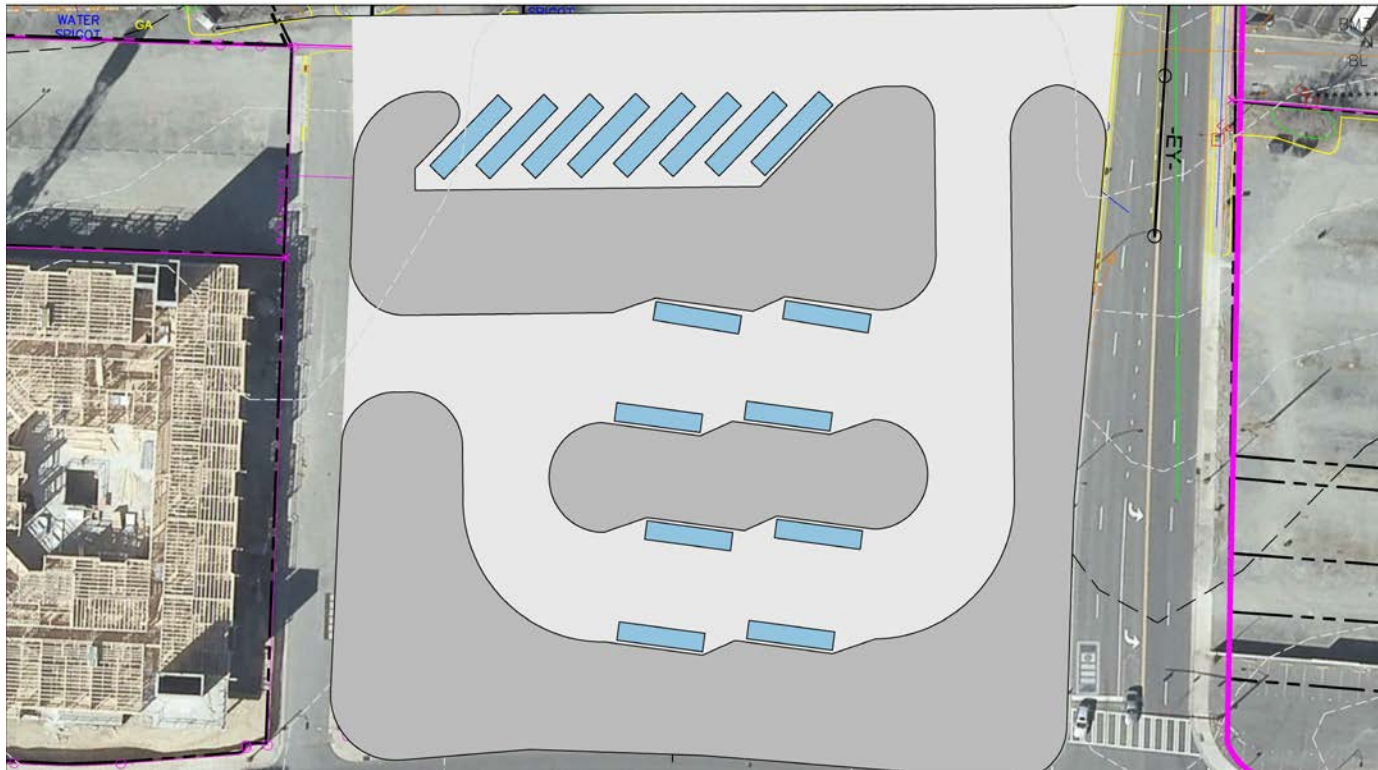
**Figure 46: South Block Alternate - Intercity Bus Only (No CATS)**



Source: ColeJenest & Stone

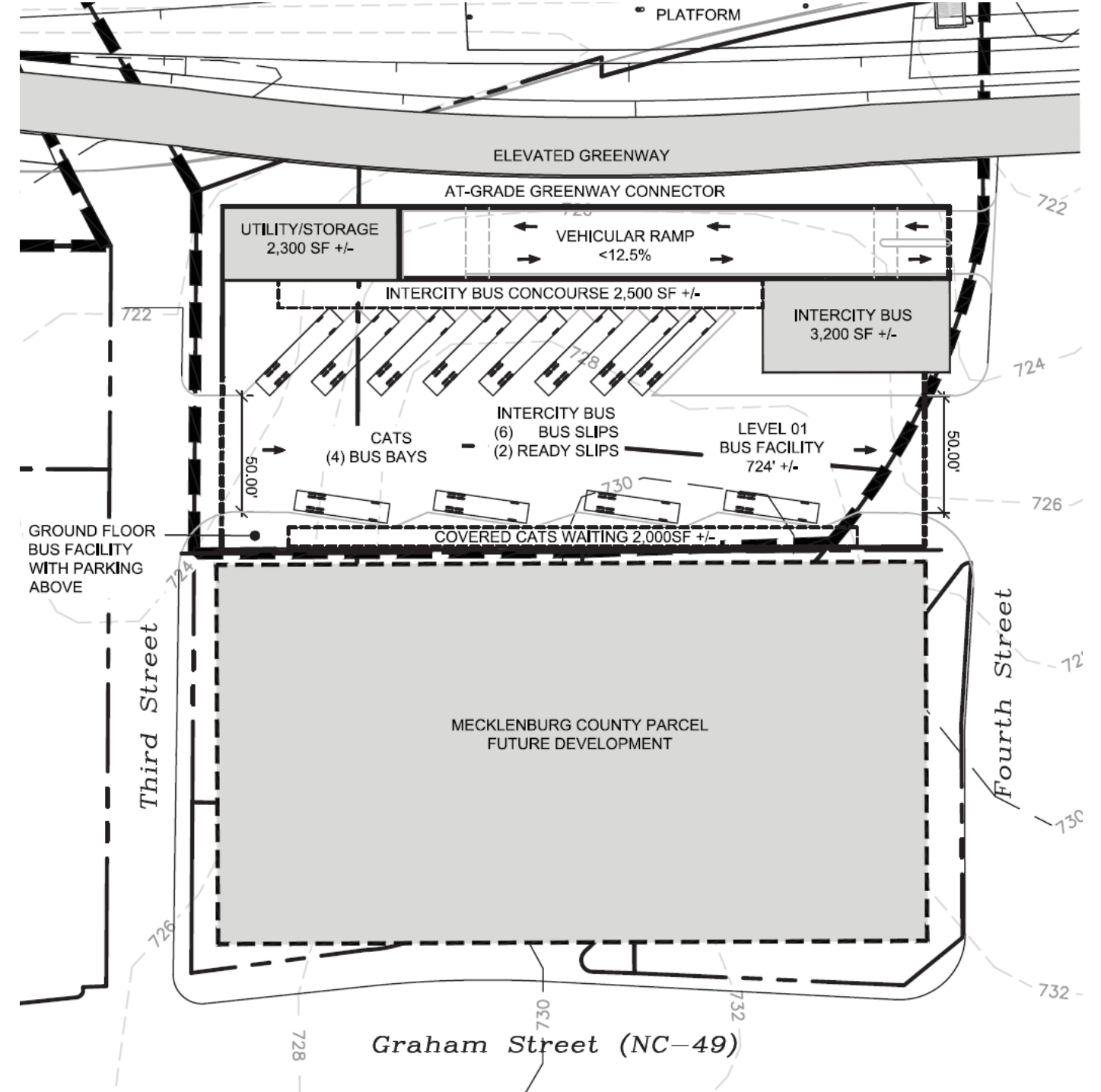


Figure 47: South Block Alternate - Surface Parking Only (No Overbuild)



Source: ColeJenest & Stone

Figure 48: South Block Alternate - Use of NCDOT Parcel Only



Source: ColeJenest & Stone



## 6 PHASING STRATEGY

### 6.1 Overview of Phasing Strategy

#### 6.1.1 Independent Rail Station

The overall phasing strategy for CGS site development is focused on creating a master plan that enables a new rail station to be constructed independent of surrounding private development on the Main Block. One of the primary goals of the CGS effort is to construct a new rail station in the near term. Developing an option that enables a rail station to be constructed independently of private development maximizes the opportunity for early implementation of the rail station.

#### 6.1.2 Permanent Rail Station

In addition to the ability to construct a station building independent of the private development, the station building should be constructed as the permanent facility from the outset of the project. By enabling the station building to be constructed in its permanent location, no temporary station facilities are required. Temporary facilities would provide a sub-par passenger experience for some period of time, and then additional costs would be incurred from the separate construction of the permanent facility and the removal of the temporary facility. From a cost and passenger perspective, it is advantageous to construct a permanent facility from the outset of the project.

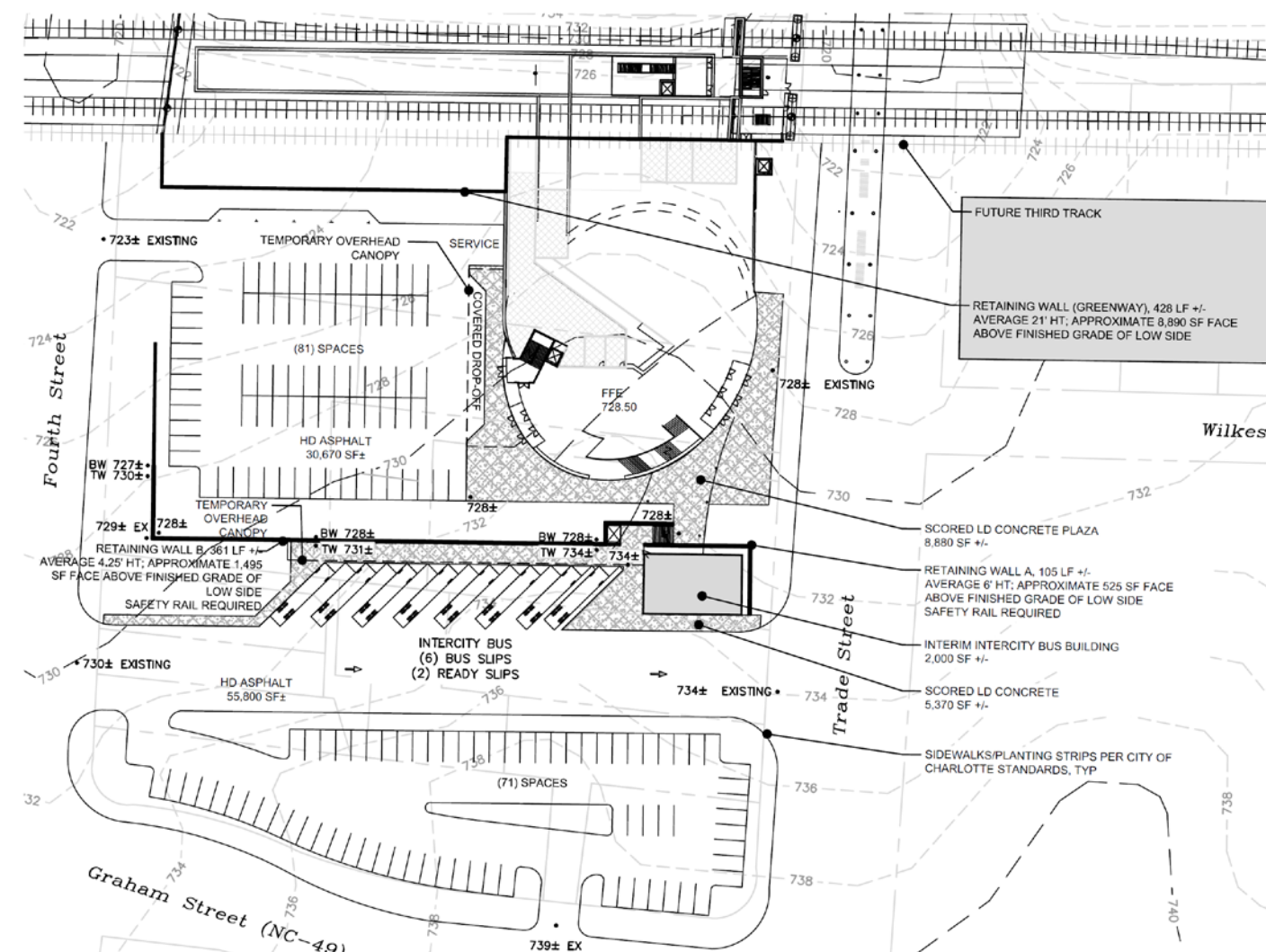
This MSAP recommends the construction of a permanent rail station rather than a temporary station. However, recognizing the phased build-out of the Main Block and other parcels, not all the floors of the station building would not be fully finished during the initial phase. This plan proposes to construct the full shell of the rail station building during initial construction, but only the first floor would be fully built out. All passenger and operation facilities are located on the first floor (the concourse level), thus enabling the station to be fully functional.

The upper floor(s) of the stations would not be fully built out until the adjacent private development is also constructed during the subsequent phase. The upper level(s) of the rail station building would open onto the plaza level of the Main Block. That plaza level is integral to the private development and a thoughtful design of the plaza will link the private development to the rail station. Therefore, until the plaza level has been completed, there is little need to finish the upper level(s) of the station building. The shell for the upper levels would be constructed as part of the initial phase of construction, but final build-out costs could be deferred to a later phase by waiting to upfit the upper levels later. This approach is reflected in the conceptual cost estimate and funding plan presented in Section 7.

### 6.2 Interim Condition

Prior to the full build-out of the Main Block with private development, the rail station building can be used by constructing temporary surface parking and a temporary bus facility on the Main Block. This use ultimately will be moved to the South Block, but can be accommodated temporarily on the Main Block with a minimal investment in infrastructure. **Figure 49** illustrates the proposed interim condition that accommodates a fully-functional rail station in its permanent location on the Main Block, prior to the large-scale redevelopment of the remainder of the Main Block.

Figure 49: Main Block Interim Condition



Source: ColeJenest & Stone, Bergmann Associates

### 6.3 Proposed Infrastructure by Phases

A phased implementation approach can facilitate the near-term development of a rail station while also setting the stage for private development to occur. The following figures identify the specific infrastructure components that are envisioned to be constructed during each phase. The potential implementation approach is divided into three general phases, with additional sub-phases.

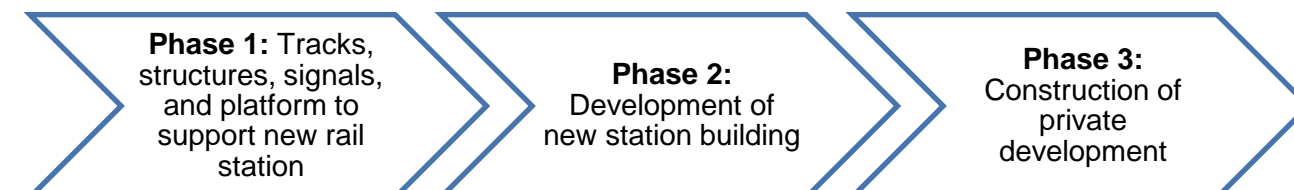
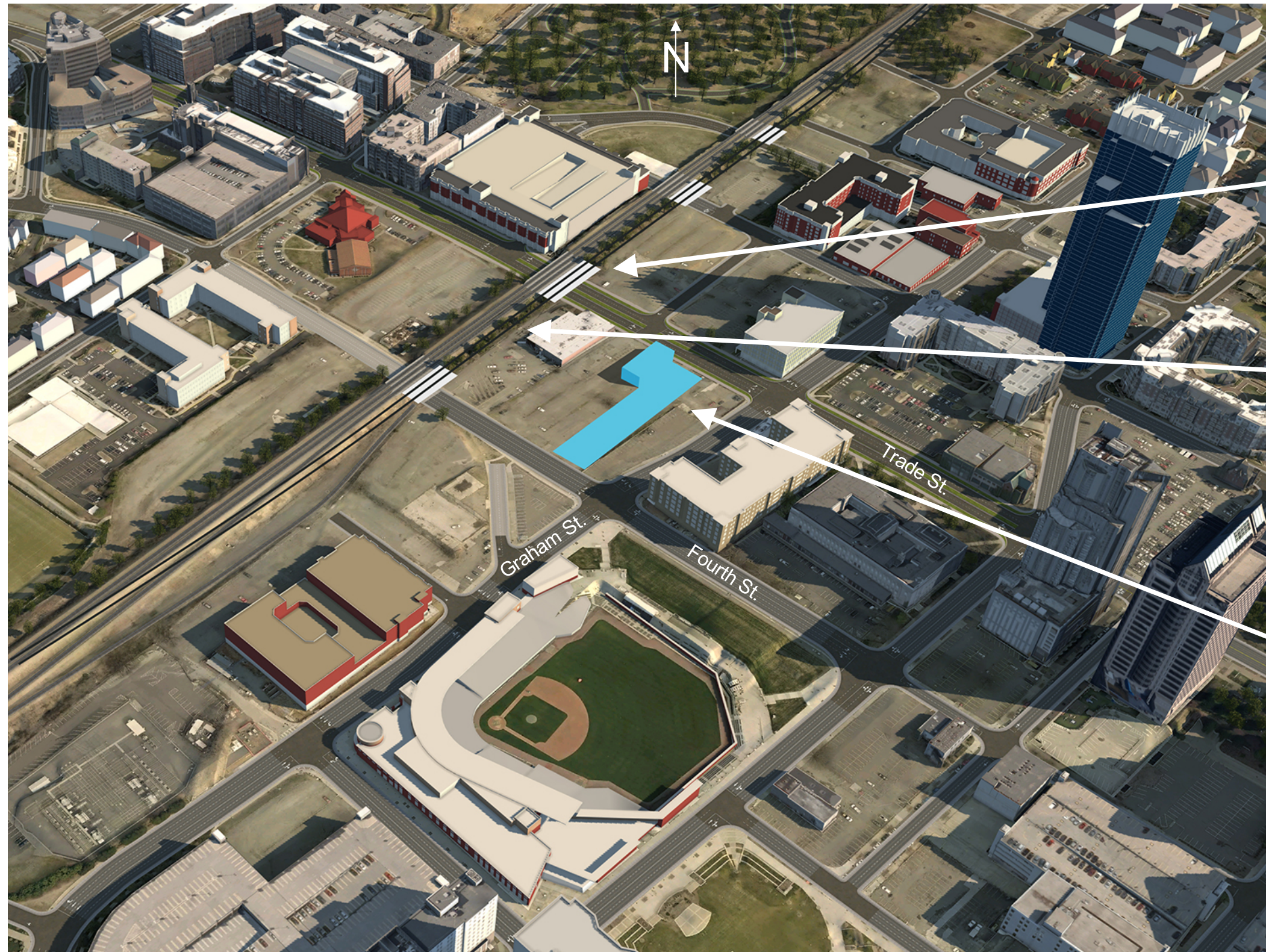




Figure 50: Potential Phasing Approach (Phase 1a)



## Phase 1a

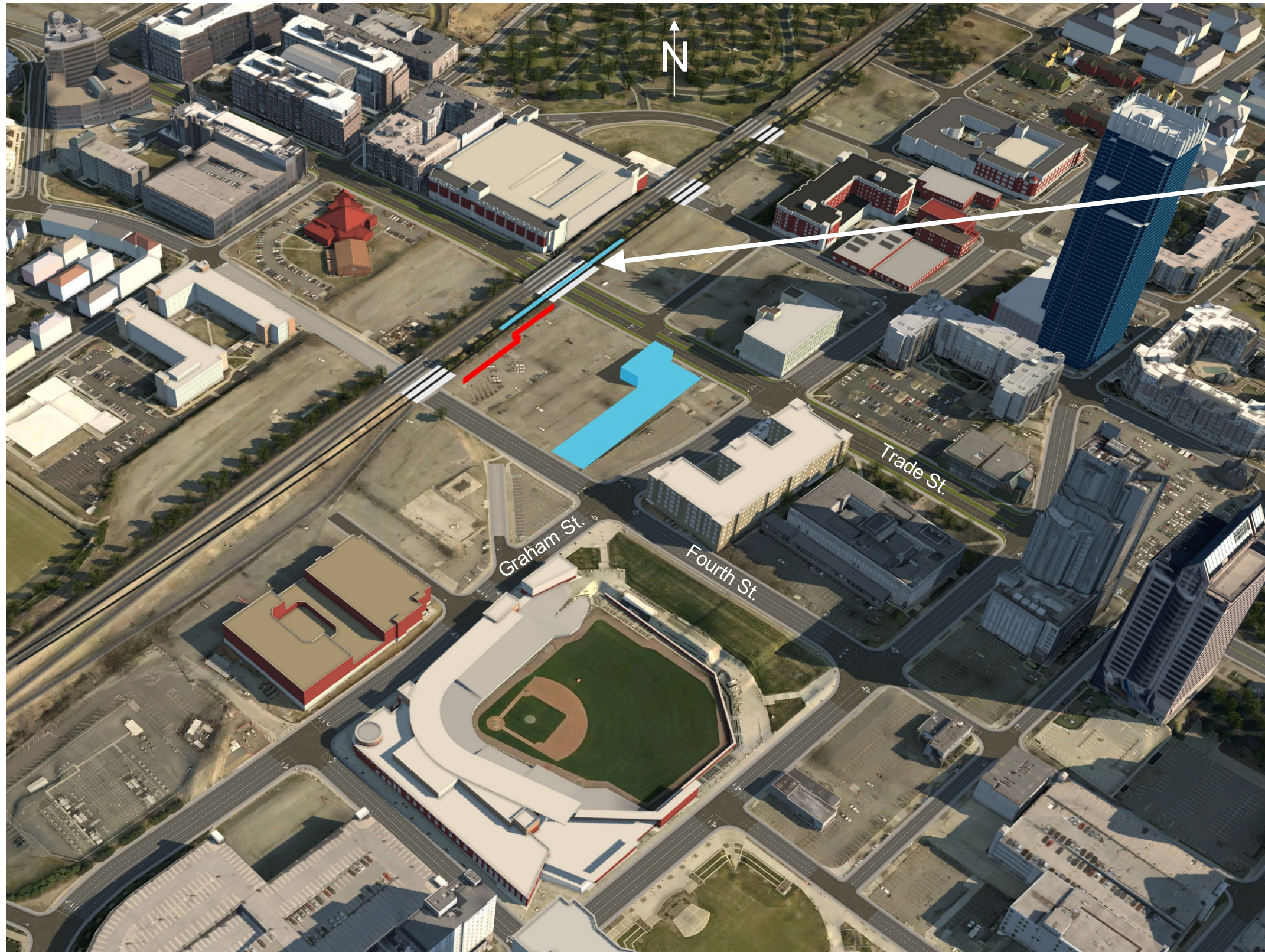
Construct track, structures, and signals to support two new station tracks

Construct retaining wall / earthwork on main block

Construct temporary intercity bus facility on main block



Figure 51: Potential Phasing Approach (Phase 1b)

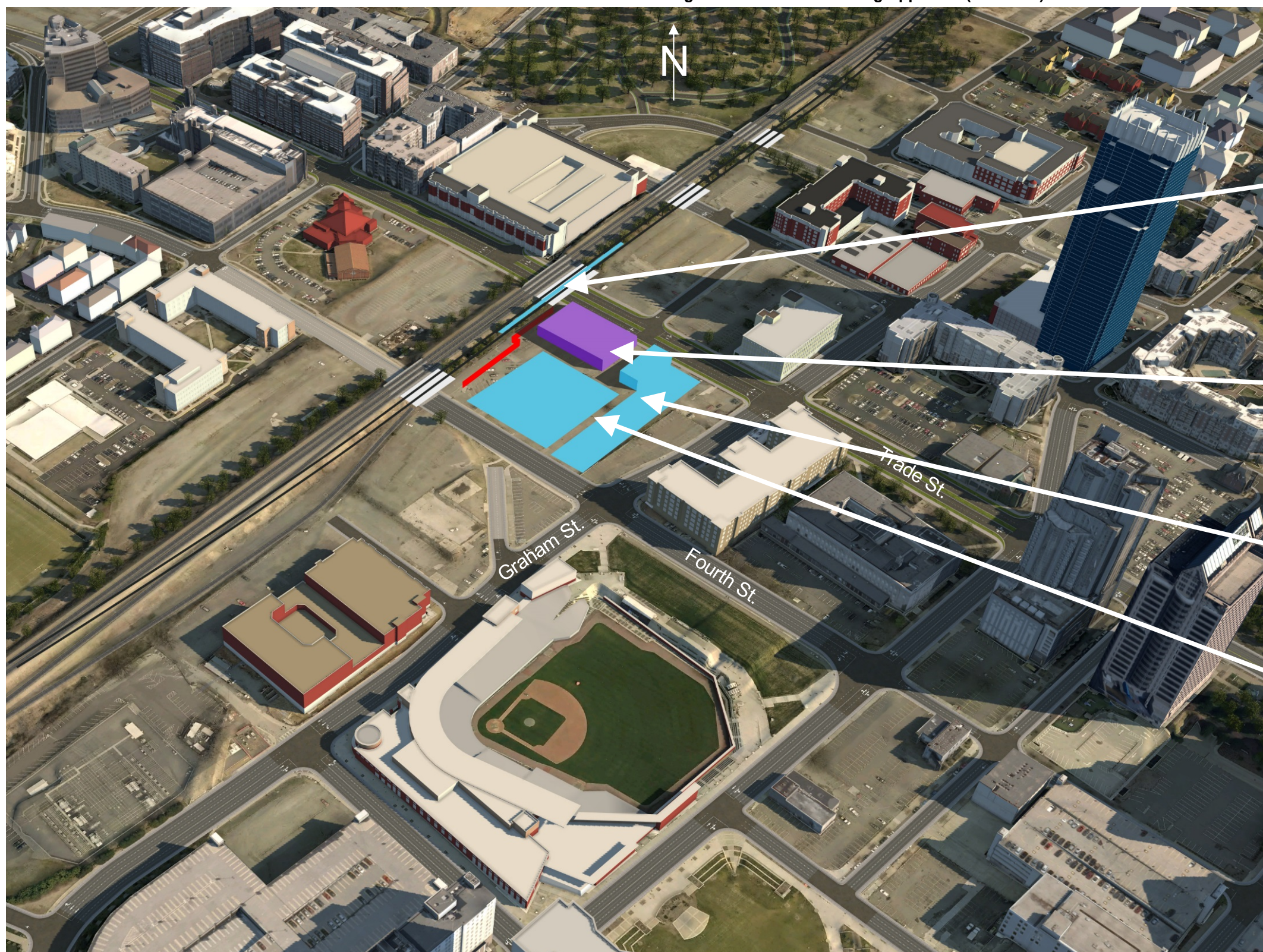


## Phase 1b

Construct rail platform and canopy for passenger loading / unloading (approx. canopy extents shown)



Figure 52: Potential Phasing Approach (Phase 2a)



## Phase 2a

Construct platform canopy

Construct station building (interim condition)

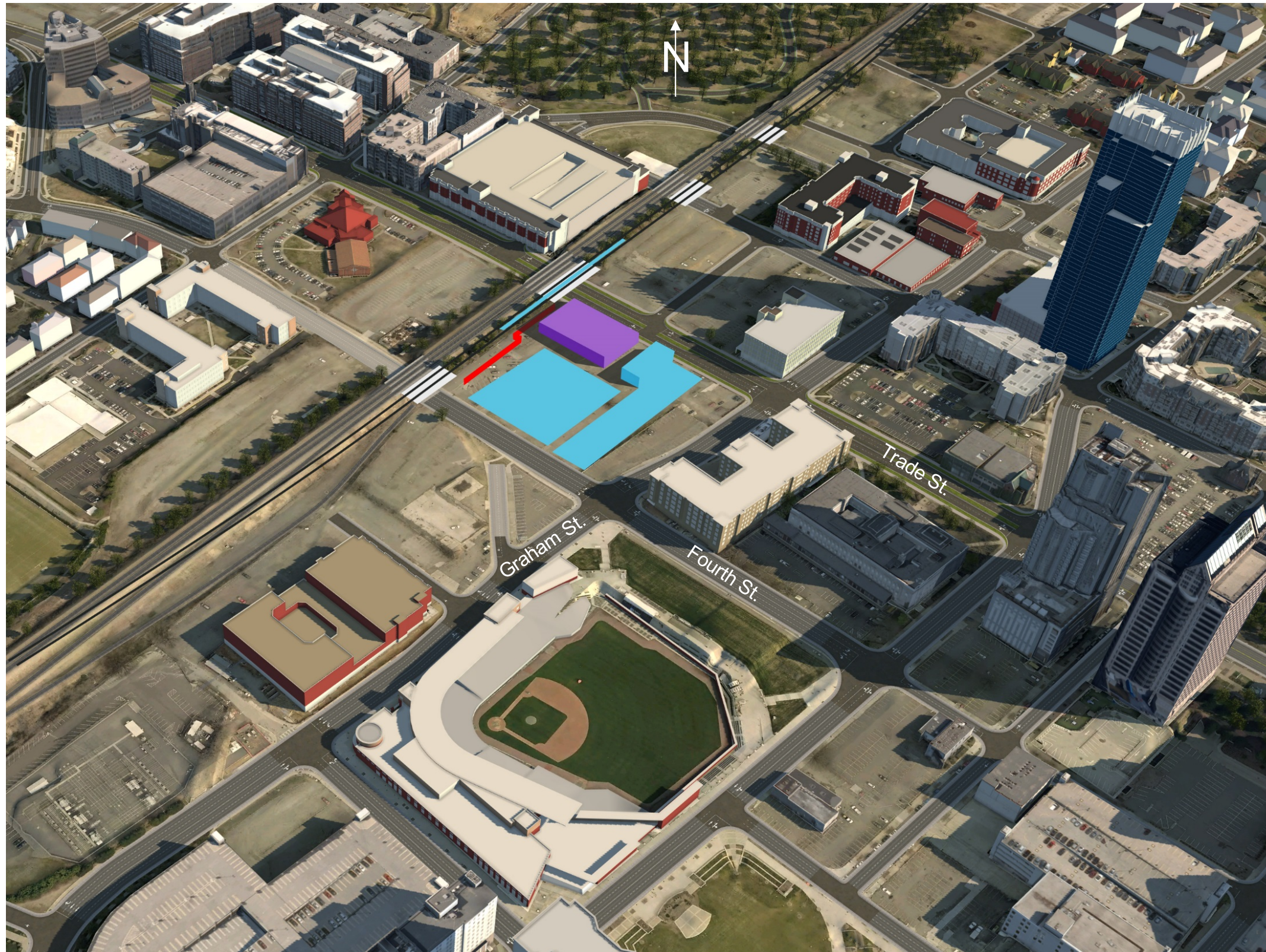
- Full construction of concourse level
- Core and shell only for plaza / mezzanine levels

Temporary intercity bus facility remains in place until Phase 3b

Construct temporary surface parking and passenger drop-off area on Main Block for rail customers



Figure 53: Potential Phasing Approach (Phase 2b)

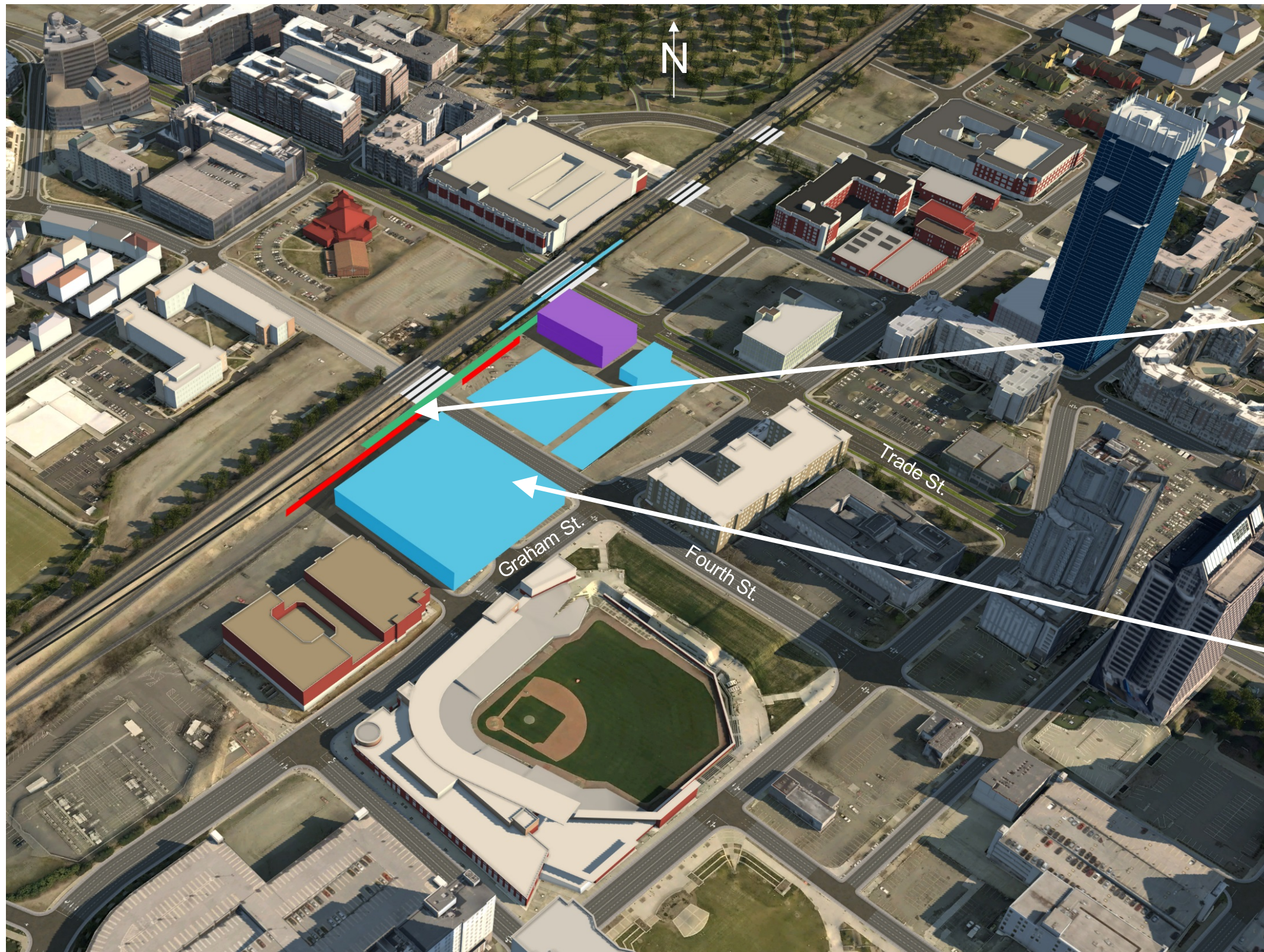


## Phase 2b

Decommission existing Amtrak station on North Tryon Street – not shown



Figure 54: Potential Phasing Approach (Phase 3a)



## Phase 3a

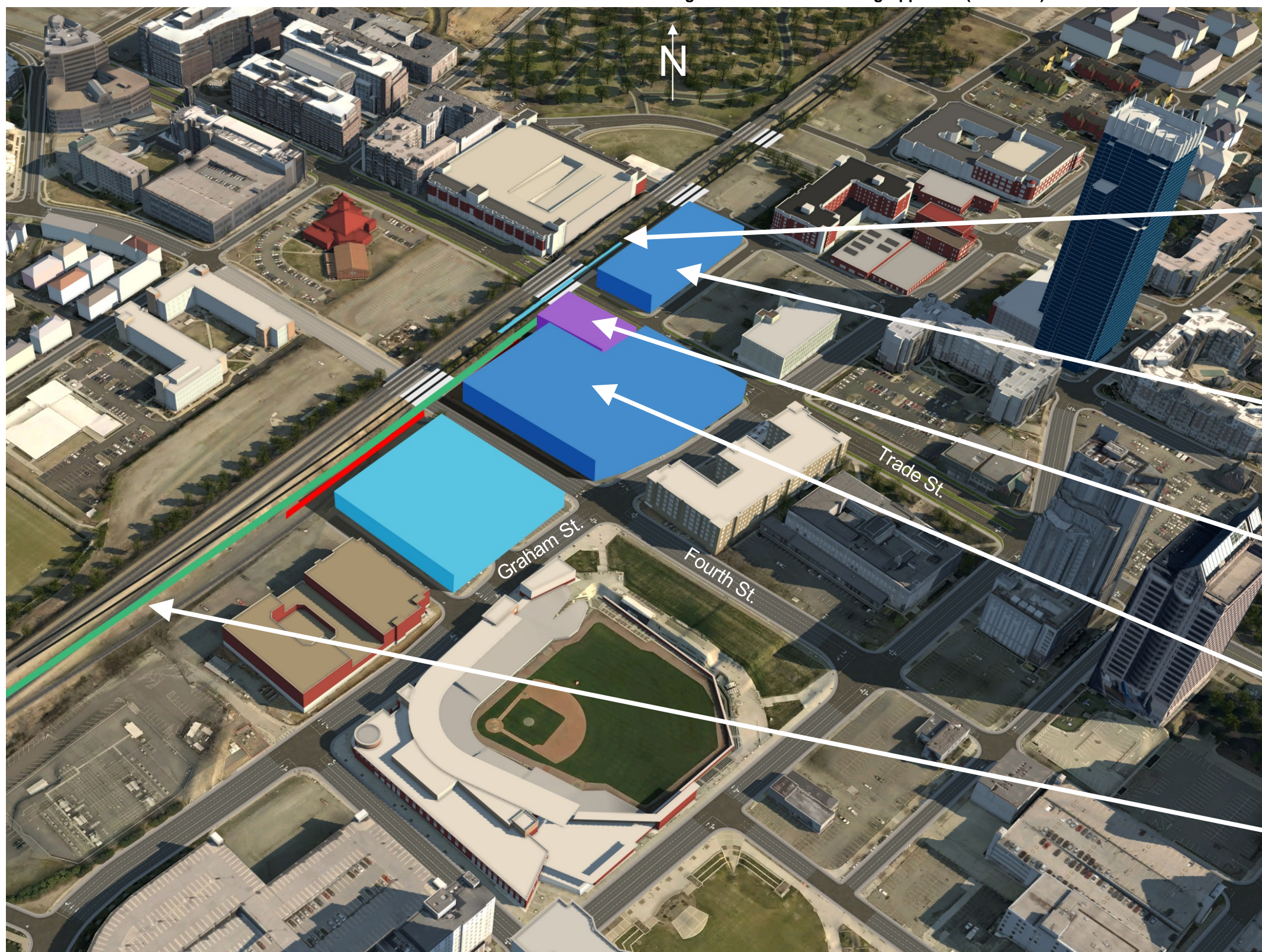
Construct greenway connection from South Block onto Main Block, with bridge over Fourth Street, vertical circulation, and retaining walls

Construct South Block development (ground-floor bus facility, structured parking, residential over retail wrapping garage)

- South Block parking will serve as temporary parking for rail passengers while Main Block private development is under construction in Phase 3b



Figure 55: Potential Phasing Approach (Phase 3b)



## Phase 3b

Extend greenway connection from Main Block onto North Block, with bridge over Trade Street, vertical circulation, and retaining walls

Construct North Block private development

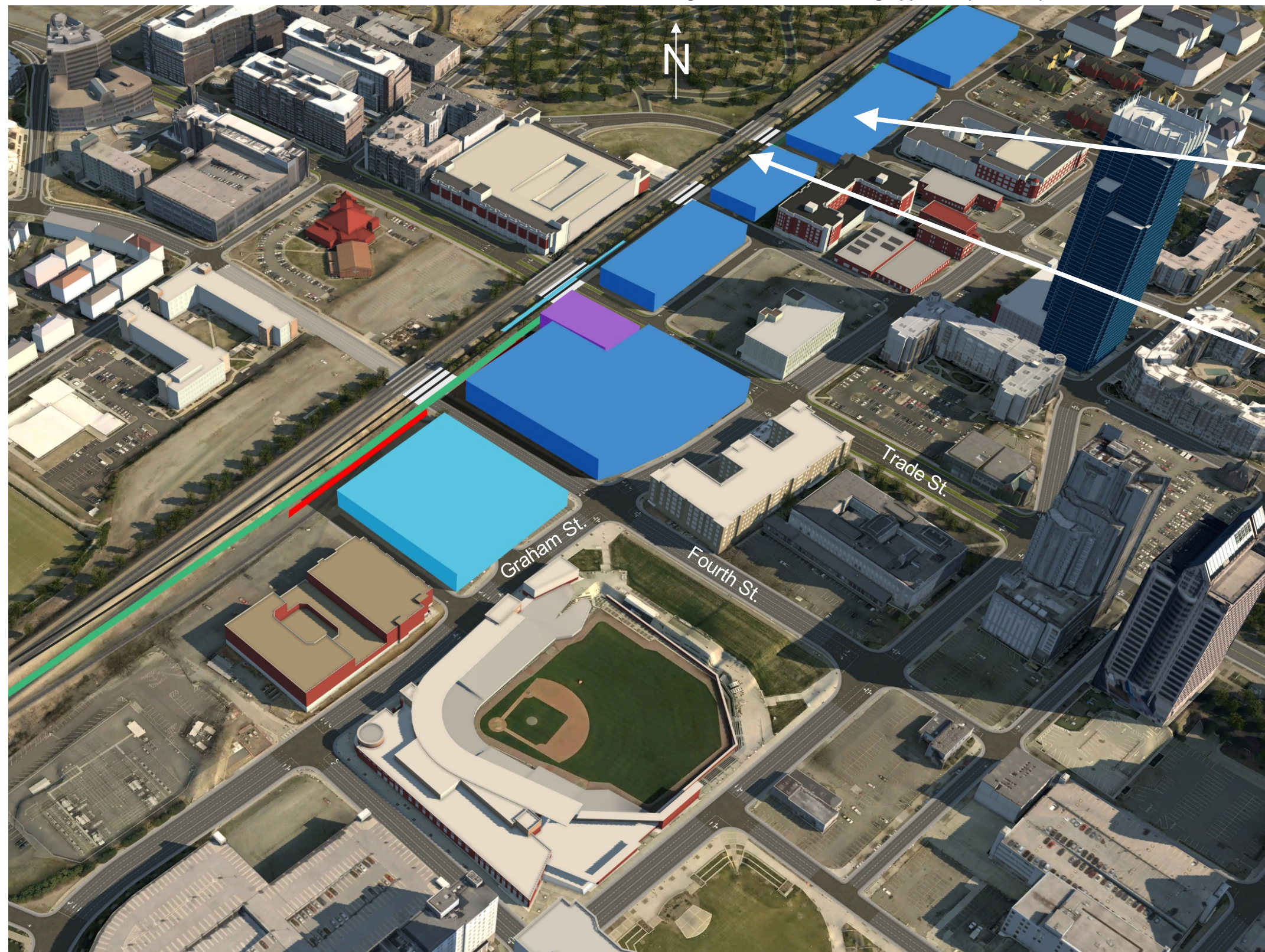
Complete construction of upper levels of station building

Construct Main Block private development

Extend greenway to the vicinity of Bank of America Stadium



Figure 56: Potential Phasing Approach (Phase 3c)



## Phase 3c

Construct Remote Blocks private development

Extend greenway north through Remote Blocks



## 7 FUNDING PLAN

The purpose of this section is to propose a preliminary funding plan for the Charlotte Gateway Station project, including a review of potential revenue sources that could bridge the funding gaps identified in this plan.

Estimated capital costs in 2017 dollars are \$800 million for full implementation of all public and private components, including \$91.3 million for Phase 1 (Tracks and platform structures) and \$49.9 million for Phase 2 ( Station building and decommissioning of existing station). Phase 3 includes the development of the Main Block, South Block, North Block, and the Remote Blocks, along with completion of the plaza and mezzanine levels of the station building. This analysis addresses potential options to fund and finance the project. While private funding can support real estate development projects on blocks adjacent to the station, public funding may be needed for the transportation and public space elements included in Phases 1 and 2.

### 7.1 Capital Plan

This section describes projected capital uses and sources of funding. **Table 2** summarizes the phases of the project, including the estimated capital cost of each.

**Table 2: CGS Project Estimated Capital Cost by Phase (millions of 2017 dollars)**

Phase	Description	Cost (2017 dollars, million)
1	Tracks and platform structures	\$91.3
2	Station building (completion of concourse level) and decommissioning of existing station	49.9
3	Main, South, and North Blocks private development and completion of upper floors of station building; future development of Remote Blocks	658.9 <sup>1</sup>
<b>TOTAL</b>		<b>\$800.1</b>

1: identified costs, excluding Remote Blocks buildings

#### 7.1.1 Capital Costs

This section describes the capital costs estimated by the consultant team for the Charlotte Gateway Station.

**Table 3** summarizes the estimated capital cost of the Charlotte Gateway Station project by phase and cost item. Costs are summarized in 2017 dollars, per the estimate prepared by WSP on behalf of CATS and NCDOT. Cost estimates for items previously estimated by NCDOT separately are noted as such. Not all costs for Phase 3 were determined at this stage of the project.

The total cost of the full implementation of the project as envisioned is estimated at \$800 million (2017 dollars). A large percentage of these costs correspond to private development, which is directly dependent on the ultimate development plan.

**Table 3: CGS Project Estimated Capital Cost (2017 dollars)**

Phase	Costs			
	Cost Item - High-Level	Cost Items	Basic Assumptions	Costs (\$2017)
1a	Track, Structures, Signals	Track, structures, and signals for Tracks 1 & 2	Per NCDOT estimate	66,940,000
1a	Track, Structures, Signals	ROW	Per NCDOT estimate	6,000,000
1a	Track, Structures, Signals	Project development and administration	Per NCDOT estimate	4,250,000
1a	Temporary Intercity Bus Facility on Main Block	Allowance from NCDOT	Per NCDOT estimate	3,600,000
1a	Earthwork and retaining walls	4th Street to Trade Street	Per NCDOT estimate	2,700,000
1a		<b>Total</b>		<b>83,490,000</b>
1b	Platform and Canopy	Platform structure	Based on 1100' platform	7,820,024
1b		<b>Total</b>		<b>7,820,024</b>
2a	Platform and Canopy	Canopy over platform and furnishings	Curved glass; assumes 600' x 20'	5,128,943
2a	Rail station building	Initial construction - concourse level fit-out and upper (plaza and mezzanine) floor core	Includes concourse and vertical circulation vestibule	35,850,912
2a	Rail station building	Temporary canopy at drop-off	Assume 2500 sf	476,531
2a	Rail station building	Temporary surface parking on main block	Parking for approximately 150 vehicles	1,935,450
2a	Rail station building	Trade Street civil and utility work allowance	Allowance	513,188
2a		<b>Total</b>		<b>43,905,023</b>
2b	Rail station building	Decommission existing station	Per NCDOT estimate	6,000,000
2b		<b>Total</b>		<b>6,000,000</b>
3a	Earthwork and retaining walls	MLK to 3rd Street	Assume 22' above grade, 6' below grade, 12' foundation	6,201,260
3a	Earthwork and retaining walls	3rd Street to 4th Street	grade, 12' foundation	4,508,833
3a	South block development	Structured parking	Assume 900 spaces; >50% enclosed	36,685,575
3a	South block development	Ground-floor bus facility	Space for intercity and CATS buses	10,230,026
3a	South block development	Private development (residential) wrapping garage	Seven floors of residential over ground-level retail	120,895,245
3a	Greenway	From 3rd St. to Trade St.	Greenway path	316,417
3a	Greenway	Structure over 4th St.	Assume stand-alone bridge	2,111,400
3a	Greenway	Vertical circulation to greenway at 4th St.	Design to be determined	293,250
3a	Greenway	Vertical circulation to greenway at Trade St.	Design to be determined	293,250
3a	Street reconstruction	Graham St.	Assume improvement between 3rd and Trade Streets	777,699
3a	Street reconstruction	4th St.	Assume 500' of improvement	439,875
3a	Street reconstruction	Trade St.	Assume 500' of improvement	439,875
3a		<b>Total</b>		<b>183,192,705</b>
3b	Earthwork and retaining walls	Trade Street to 5th Street	Assume 22' above grade, 6' below grade, 12' foundation	4,818,896
3b	Rail station building	Finish construction - completion of upper floors	Based on plan for plaza and mezzanine levels	5,804,239
3b	Main block development	Subgrade parking	of subgrade	49,870,095
3b	Main block development	Plaza-level plinth	Includes cost of pedestrian plaza and landscape	15,249,191
3b	Main block development	Vertical construction of buildings	Based on densities calculated in MSAP	250,089,758
3b	North block development	Subgrade parking	Three level of subgrade parking	24,808,950
3b	North block development	Vertical construction of building	Based on densities calculated in MSAP	113,481,885
3b	Greenway	From BoA Stadium to 3rd St.	Greenway path	785,324
3b	Greenway	Structure over Trade St.	Assume stand-alone bridge	1,759,500
3b	Greenway	From Trade St. to 5th St.	Greenway path	365,976
3b	Greenway	Vertical circulation to greenway at 5th St.	Design to be determined	293,250
3b		<b>Total</b>		<b>467,327,063</b>
3c	Earthwork and retaining walls	5th Street to 6th Street	Assume 22' above grade, 6' below grade, 12' foundation	3,436,532
3c	Earthwork and retaining walls	6th Street to 7th Street	Assume 22' above grade, 6' below grade, 12' foundation	1,227,333
3c	Remote blocks development	Vertical construction of buildings (and parking)	No anticipated program defined at this stage	-
3c	Greenway	Structure over 5th St.	Assume stand-alone bridge	1,935,450
3c	Greenway	From 5th St. to 9th St.	Greenway path	611,866
3c	Greenway	Structure over 6th St.	Assume stand-alone bridge	1,196,460
3c		<b>Total</b>		<b>8,407,640</b>
<b>Grand Total</b>				<b>800,142,456</b>



The base year dollar costs must be escalated to year of expenditure (YOE) dollars in order to account for the inflated cost to deliver each phase of the project in future years. Costs for each phase were escalated to an estimated midpoint of construction. Escalation rates were estimated using historical 2010 to 2016 RS Means Construction Cost Index data for the Charlotte, NC metropolitan area, resulting in a 4.3% annual inflation rate. Costs were then escalated to a year of expenditure corresponding with the estimated midpoint of the anticipated construction period, as summarized in **Table 4**.

Table 4: CGS Project Escalation Assumptions by Phase

Phase	Description	Anticipated Construction Period	Escalated Year of Expenditure
1	Tracks and platform structures	2018-2021	2019
2	Station building (completion of concourse level) and decommissioning of existing station	2019-2022	2021
3	Main, South, and North Blocks private development and completion of upper floors of station building; Remote Blocks private development	2020-2024	2022

**Table 5** summarizes the estimated cost of each phase in YOE dollars.

Table 5: CGS Project Estimated Capital Cost (YOE dollars)

Phase	Costs			
	Cost Item - High-Level	Cost Items	Basic Assumptions	Costs (\$YOE)
1a	Track, Structures, Signals	Track, structures, and signals for Tracks 1 & 2	Per NCDOT estimate	72,783,485
1a	Track, Structures, Signals	ROW	Per NCDOT estimate	6,523,766
1a	Track, Structures, Signals	Project development and administration	Per NCDOT estimate	4,621,001
1a	Temporary Intercity Bus Facility on Main Block	Allowance from NCDOT	Per NCDOT estimate	3,914,260
1a	Earthwork and retaining walls	4th Street to Trade Street	Per NCDOT estimate	2,935,695
1a		Total		90,778,207
1b	Platform and Canopy	Platform structure	Based on 1100' platform	8,502,669
1b		Total		8,502,669
2a	Platform and Canopy	Canopy over platform and furnishings	Curved glass; assumes 600' x 20'	6,063,482
2a	Rail station building	Initial construction - concourse level fit-out and upper (plaza and mezzanine) floor core	Includes concourse and vertical circulation vestibule	42,383,273
2a	Rail station building	Temporary canopy at drop-off	Assume 2500 sf	563,360
2a	Rail station building	Temporary surface parking on main block	Parking for approximately 150 vehicles	2,288,107
2a	Rail station building	Trade Street civil and utility work allowance	Allowance	606,695
2a		Total		51,904,916
2b	Rail station building	Decommission existing station	Per NCDOT estimate	7,093,254
2b		Total		7,093,254
3a	Earthwork and retaining walls	MLK to 3rd Street	Assume 22' above grade, 6' below grade, 12' foundation	7,644,477
3a	Earthwork and retaining walls	3rd Street to 4th Street	12' foundation	5,558,172
3a	South block development	Structured parking	Assume 900 spaces; >50% enclosed	45,223,397
3a	South block development	Ground-floor bus facility	Space for intercity and CATS buses	12,610,857
3a	South block development	Private development (residential) wrapping garage	Seven floors of residential over ground-level retail	149,031,156
3a	Greenway	From 3rd St. to Trade St.	Greenway path	390,056
3a	Greenway	Structure over 4th St.	Assume stand-alone bridge	2,602,785
3a	Greenway	Vertical circulation to greenway at 4th St.	Design to be determined	361,498
3a	Greenway	Vertical circulation to greenway at Trade St.	Design to be determined	361,498
3a	Street reconstruction	Graham St.	Assume improvement between 3rd and Trade Streets	958,693
3a	Street reconstruction	4th St.	Assume 500' of improvement	542,247
3a	Street reconstruction	Trade St.	Assume 500' of improvement	542,247
3a		Total		225,827,084
3b	Earthwork and retaining walls	Trade Street to 5th Street	Assume 22' above grade, 6' below grade, 12' foundation	5,940,396
3b	Rail station building	Finish construction - completion of upper floors	Based on plan for plaza and mezzanine levels	7,155,057
3b	Main block development	Subgrade parking	Grade parking (level 1) and three levels of subgrade	61,476,346
3b	Main block development	Plaza-level plinth	Includes cost of pedestrian plaza and landscape	18,798,130
3b	Main block development	Vertical construction of buildings	Based on densities calculated in MSAP	308,293,067
3b	North block development	Subgrade parking	Three level of subgrade parking	30,582,729
3b	North block development	Vertical construction of building	Based on densities calculated in MSAP	139,892,487
3b	Greenway	From BoA Stadium to 3rd St.	Greenway path	968,092
3b	Greenway	Structure over Trade St.	Assume stand-alone bridge	2,168,988
3b	Greenway	From Trade St. to 5th St.	Greenway path	451,149
3b	Greenway	Vertical circulation to greenway at 5th St.	Design to be determined	361,498
3b		Total		576,087,939
3c	Earthwork and retaining walls	5th Street to 6th Street	Assume 22' above grade, 6' below grade, 12' foundation	4,236,314
3c	Earthwork and retaining walls	6th Street to 7th Street	Assume 22' above grade, 6' below grade, 12' foundation	1,512,969
3c	Remote blocks development	Vertical construction of buildings (and parking)	No anticipated program defined at this stage	-
3c	Greenway	Structure over 5th St.	Assume stand-alone bridge	2,385,887
3c	Greenway	From 5th St. to 9th St.	Greenway path	754,266
3c	Greenway	Structure over 6th St.	Assume stand-alone bridge	1,474,912
3c		Total		10,364,348
Grand Total				970,558,417



### 7.1.2 Preliminary Funding Plan

To date, NCDOT and CATS have identified funding of approximately \$133 million for CGS implementation from various federal, state, and local sources. Most of this funding will be used to pay for the design and construction of Phases 1a and 1b (consisting of the tracks, structures, signals, and platform to support a new rail station). CATS and NCDOT recommend that any funding not utilized for Phases 1a and 1b be carried over and utilized to advance Phase 2a to implement a fully functional station and relocate Amtrak service to Uptown as soon as practical. This analysis assumes approximately \$20 million is “flexed” for this purpose.

The private developer would fund costs identified for private buildings in Phases 3a and 3b. The bulk of the costs for buildings in Phase 3c have not yet been determined, but it is similarly anticipated that a private developer would cover these costs. Ultimately, the costs for these phases will align with the development plan that is advanced. Infrastructure elements that are not associated with private buildings (e.g. greenway extensions) are included in these phases as well. It is possible that some of these costs could be borne by the public sector, although much will depend on the nature of the joint development plan that is established. A federal grant available for bus facilities is available to cover permissible costs associated with the planned bus facility in Phase 3a.

A preliminary funding plan, summarized in **Table 6**, was developed based on identified and potential funding sources and the estimated project cost in YOE dollars. To develop this plan, it was necessary to identify sources for complete funding of Phases 1a and 1b in order to initiate the project and draw down federal grants prior to their expiration.

**Table 6: CGS Project Preliminary Funding Plan (YOE dollars)**

	Phase 2a	Phase 2b	Phase 3a	Phase 3b	Phase 3c (Partial)
	Canopy and station building (initial construction)	Decommission existing Amtrak station	Private development (South Block)	Private development (Main Block and North Block)	Private development (Remote Blocks)
<b>Costs by Phase (Anticipated YOE \$)</b>	<b>\$51,904,916</b>	<b>\$7,093,254</b>	<b>\$225,827,084</b>	<b>\$576,087,939</b>	<b>\$10,364,348</b>
<b>Project Funding Sources</b>					
Capital Carryover	\$20,126,870	\$7,093,254			
CATS Grant - Bus Component			\$7,200,000		
Private Developer TBD			\$218,627,084	\$576,087,939	\$10,364,348
Other funding TBD	\$31,778,046				
	<b>\$51,904,916</b>	<b>\$7,093,254</b>	<b>\$225,827,084</b>	<b>\$576,087,939</b>	<b>\$10,364,348</b>

### 7.1.3 Options for Funding and Financing

The following sections describe funding and financing options that stakeholders have considered or may consider to fund and finance this project. The public funding options are logical candidates to potentially fill the anticipated funding gap for Phase 2a, whereas the value capture-based funding options could contribute to the construction of Phase 3.

#### 7.1.3.1 Federal Funding Options

This subsection describes federal grant programs relevant to the project.

U.S. DOT Transportation Investment Generating Economic Recovery (TIGER) Grant: The TIGER program was created in 2009 as part of the American Recovery and Reinvestment Act (ARRA). The discretionary grant program provides funding on a competitive basis for highway, transit, freight, port, bike/pedestrian, and multimodal projects.

Surface Transportation Planning - Direct Allocation (STP-DA): These Federal Highway Administration (FHWA) funds are directly allocated to metropolitan planning organization (MPOs) transportation projects by NCDOT. This program has since been superseded by the Surface Transportation Block Grant (STBG) Program implemented in the Fixing America’s Surface Transportation (FAST) Act of 2015.

Federal Transit Administration (FTA) Section 5339 Grants for Buses and Bus Facilities (Bus) Program: Competitive Grant prioritizing “projects that demonstrate how they will address significant repair and maintenance needs, improve the safety of transit systems, deploy connective projects that include advanced technologies to connect bus systems with other networks, and support the creation of ladders of opportunity”<sup>1</sup>. CATS anticipates use of funding from this program to pay for a portion of the new bus improvements.

#### 7.1.3.2 State Funding Options

This subsection describes state grant programs relevant to this project. Potential funding sources include Strategic Transportation Investments, which is formula-based funding from NCDOT.

#### 7.1.3.3 Local Public Funding Options

Local funding may come from public or private sources. Possible public funding sources include the City of Charlotte Capital Improvement Program, which consists of funds set aside for investments in the city’s physical assets. In addition, the City could explore value capture options as described below.

#### 7.1.3.4 Value Capture Options

The nature of the Charlotte Gateway Station project and the availability of land for private development around the station suggests that forms of value capture may be most appropriate to fund station development. Charlotte’s highly concentrated mixed-use development downtown suggests that value capture opportunities would exist. There is also precedent for private sector contribution to transportation infrastructure investments in Charlotte. The Charlotte Transportation Center in Uptown was funded in partnership with NationsBank (now Bank of America), with land provided by the city and building funds provided by the bank.

<sup>1</sup> Source: FTA <https://www.transit.dot.gov/funding/applying/notices-funding/5339b-bus-and-bus-facilities-discretionary-program-bus-program-2016>



Elsewhere in the U.S., a variety of private funding has supported transportation infrastructure projects: while property sales proceeds contributed to the funding of the Denver Union Station, Houston's Uptown Tax Increment Reinvestment Zone supports the building of a BRT line on Post Oak Boulevard. It should be noted that value capture projects are more frequently for public transit investments than for intercity passenger rail stations.

This section addresses the potential private sector contributions and value capture to support this project:

- What types of private sector contributions can be made?
- What are the value capture opportunities?
- Should the public sector act as a catalyst to facilitate development?

There are several ways that CATS and NCDOT can leverage existing landholdings surrounding Charlotte Gateway Station to help bridge the identified funding gap. This range of options varies based on numerous criteria, including financial upside, real estate market risk, and project control. Furthermore, the financial upside of each of these options hinges on the development opportunity on the parcels in question.

The concept of value capture refers to an approach that can be used to help pay for infrastructure project's capital or maintenance costs by monetizing the development benefits that the infrastructure project creates and channeling them into a project fund. The most common revenue tools available for value capture tend to fall into three general categories, ranked here by order of appropriateness to the Charlotte Gateway Station project:

- **Tax Increment Financing (TIF)** is a form of special district and a special funding tool used to finance public infrastructure. The increase in property tax revenue above a set threshold is dedicated to project funding within a defined boundary. This redistribution of tax revenue is not permanent, and typically expires after a defined period of time. Tax Increment Financing has been authorized in North Carolina by the Project Development Financing Act in 2003.
- **Special tax assessments:** Special districts provide a mechanism for financing infrastructure projects through the imposition of taxes on properties within the established geographical boundaries that define the special district. Special Assessment Districts are authorized by North Carolina state law. An increase to this assessment could be considered as a means to pay ongoing station operation and maintenance costs.
- **Development-impact based fees:** Developer fees, sometimes called impact fees, are charges imposed on new development to help offset the cost of providing public services and infrastructure (including utilities, roads, and public transit/transportation).

However, in the case of publicly owned land, a public-private partnership (P3) can represent another method of value capture. Although there are many ways a real estate P3 scenario can be structured, for the purposes of this preliminary analysis, an assumption is made that the most viable general approaches include a leased-land scenario and a more involved joint-development scenario. In addition to these two P3 options, a fee-simple sale of the land represents an additional option. These three general scenarios are further discussed below.

**Fee-Simple Sale:** An outright sale of the publicly owned land would represent the most straightforward way to generate immediate, near-term revenue. This option does not involve value capture or any type of public-private agreement, and would carry the least amount of risk to the seller. However, although it is the lowest risk option, depending on the development opportunity, it could also represent the lowest financial upside. The amount of revenue generated from a sale would depend on the value a developer would be willing to pay for the land, which would ultimately hinge on the development potential of the land. The value of the land will depend on several factors, including market conditions for new development, existing and/or potential zoning, and any premium resulting from the transit-oriented development (TOD) potential given the land's adjacency to the Charlotte Gateway Station.

If the land value is sufficient to fill the funding gap, and if CATS and NCDOT's goals do not include controlling the future landscape of the surrounding uses, this option would be the simplest, lowest risk scenario. CATS and NCDOT are in the business of providing transportation to the public and as such, if a land sale can fill the gap, this option

would be most consistent with the institutional goals and capacity of these entities, with the least amount of exposure to the higher risk activity of real estate development.

**Joint Development:** A joint development agreement can be structured in a variety of ways, although the most likely viable structure would be to contribute the publicly-owned land as an equity stake in partnership with a developer. In exchange for contributing land, CATS and/or NCDOT would participate in project net cash flows in proportion to their share of equity contribution. This approach generally has the highest return potential but is also subject to the highest risk levels, with significant exposure to real estate market risks. In addition to exposure to the notoriously cyclical real estate sector, the public entity would also be exposed to partnership risks. In this scenario, CATS and NCDOT must ensure that the selected private partner has sufficient financial wherewithal and strong development capabilities to minimize such partnership risk.

In addition to higher financial upside and an ongoing stream of future revenue, partnering as an equity stakeholder would also provide CATS/NCDOT with increased control of future development surrounding the Charlotte Gateway Station. This could allow CATS/NCDOT to influence the mix of uses to foster transit-oriented development that serves to maximize ridership as well as optimize secondary uses such as parking. However, it also requires that CATS/NCDOT have the institutional capacity to effectively participate in a joint development, including staff and/or consultants with the requisite knowledge of the real estate development process and necessary financial agreement terms. In addition to a long-term, steady stream of revenue from the development's income, the financial agreement could also be structured in a way that allows for a larger upfront payment by the private partner that could help bridge the identified funding gap, in exchange for reduced share of future revenue. From the developer's perspective in a financial pro forma, this upfront payment may be acceptable given that it would be on par with a land acquisition cost typical of a more conventional, fee-simple sale.

**Land Lease:** In a leased land scenario, rather than selling the land to a developer in a fee-simple transaction, or actively participating as an involved joint development partner, CATS/NCDOT would maintain ownership of the land and lease it to a developer for either an upfront payment, a steady stream of long-term income, or some combination. Typical land leases call for an annual lease payment to the owner over the term of the lease. The FTA has stated that a lease must be a minimum of 50 years for a project sponsor to demonstrate satisfactory continuing control of a property, and the IRS considers any lease longer than 99 years a sale for tax purposes. In a one-time, upfront lease payment in lieu of long-term annual payments, the amount should represent the net present value of the future annual lease payments, and could ideally help bridge the identified funding gap. To arrive at this value, the likely achievable annual ground lease rent for the property is estimated and the net present value of this annual rent over the number of years in the lease is then calculated. Typically, the rent payment under a ground lease agreement is established based upon the fair market value of the land and the landowner's expected rate of return (land value multiplied by a percentage representing the owner's expected rate of return).

To the landowner, engaging in a land-lease transaction is theoretically comparable to investing in a low-risk bond. The landowner is lending an asset (the land) in return for stable, long-term periodic income (the annual lease payments). To understand the landowner's expected rate of return (the required annual lease payment), one must understand the risk profile of the investment compared to other investment alternatives. From an investment risk perspective, the owner could sell the land asset, invest the proceeds, and earn the long-term risk-free interest rate, or keep the investment in the slightly riskier real estate vehicle and get 2-3% more than the risk-free rate in exchange for the increased price volatility risk of the land asset. Although the land may experience short-term swings in value, long-term historical trends suggest that land values generally increase over time. As such, the achievable annual ground lease rate is typically the land value multiplied by a rate that is equal to the risk-free rate plus 2-3%. This math represents the typical approach to determining a ground lease rate; however, it could be adjusted upward or downward depending on prevailing real estate supply and demand conditions and other factors. From the perspective of CATS/NCDOT, this approach could facilitate the negotiation of an upfront lease payment geared to help bridge the funding gap, while minimizing the real estate risk exposure of a more involved joint development scenario.

Each of the three general strategies described above have several quantitative and qualitative pros and cons as they relate to financial upside, market risk exposure, and control of future development. These are described in **Table 7**. For instance, while the simple sale has low financial and market risk as well as institutional capacity requirements, it



also has low financial upside, control of future development. A land lease is an intermediate strategy, while joint development offers the highest control of future development and financial upside, but also faces the highest risk and requires the highest institutional capacity requirements.

**Table 7: Comparison of Value Capture Options for Real Estate Public Private Partnerships**

	Sale	Land Lease	Joint Development
Financial/Market Risk	○	◐	●
Financial Upside	○	◐	●
Control of Future Development	○	◐	●
Institutional Capacity Requirements	○	◐	●

● = High      ◐ = Medium      ○ = Low

First and foremost, the ability for any of these approaches to help bridge the funding gap will hinge on the development potential of the parcels in question. It is strongly recommended that a market analysis be conducted to determine the overall development potential and the resulting revenue-generating potential that each approach will spur. Ultimately, the strength of the market and the overall development potential of the land will determine how much leverage CATS/NCDOT has in structuring a joint development or lease agreement (or how much the land can be sold for). It is also recommended that CATS/NCDOT take the time to define their qualitative goals as they relate to land use policy, their relative risk threshold, and their institutional capacity to participate in the development process. Once the market analysis is conducted and these qualitative policies and goals are further defined, the approaches described above can be evaluated more rigorously to determine the most appropriate strategy.

#### 7.1.3.5 Capital Financing Options

The main federal financing option available to the Charlotte Gateway Station project is a Railroad Rehabilitation and Improvement Financing (RRIF) loan. The RRIF Program is a \$35 billion federal loan program administered by the USDOT Build America Bureau. It was established by Congress in 1998 to support rail project development. Historically, most of the funds have been used for freight rail projects, however passenger rail projects also qualify for the program. To date, over \$2.7 billion has been disbursed to 35 recipients. Amtrak itself borrowed \$100 million in 2002 and \$562.9 million in 2011. Other commuter rail recipients include Virginia Railway Express (\$72.5 million) and the Denver Union Station Project Authority (\$155 million).

RRIF loans may fund up to 100% of an eligible project capital costs. Funds cannot be used for operating expenses. The repayment term can be as long as 35 years, with low interest rates equivalent to US Treasury bonds of equal term. Additionally, hard collateral is required to secure the loan. This can include the project itself, other assets (infrastructure, land, etc.), or dedicated revenue streams such as taxes or user fees.

Eligible projects include:

- Acquiring, improving, or rehabilitating intermodal, rail freight or passenger equipment or facilities. This includes track, bridges, yards, buildings, stations, and rolling stock.
- Developing new intermodal or railroad facilities.
- Refinancing outstanding debt incurred for eligible projects.

Eligible loan recipients include railroads, governments (state and local), authorities or entities sponsored by governments, a group of two or more entities participating in a joint venture (public or private, with one being a railroad). The capital funding gap for Charlotte Gateway Station construction would be an eligible use. However, operations and maintenance expenses are ineligible.

Identified unfunded needs for the station building (Phase 2a) could be a candidate for a RRIF loan.

A creditworthy funding source is necessary to back a RRIF loan. Value capture revenues such as TIF revenues anticipated as local funding are generally a non-investment grade credit. Since the actual timing of development is uncertain, those revenues are notoriously hard to predict. The RRIF loan for Denver Union Station was secured with TIF revenues, but in the end, the city of Denver backed the RRIF with its full credit faith.

Beyond the potential funding sources identified above, funding and financing options for intercity rail station projects are limited. Potential capital funding and financing sources recommended for consideration include:

- **Funding:** Real estate Public-Private Partnerships (P3) such as Land lease or Joint development, which could potentially bridge the funding gap for the station and other public amenities. Further analysis would be required to assess the exact funding potential of this opportunity.
- **Financing:** A Railroad Rehabilitation and Improvement Financing (RRIF) loan, which could generate financing for the station building now, with backing from the City of Charlotte, and repayment from value capture on the development of adjacent real estate.

## 7.2 Operating Plan

Based on other station precedents, this study assumes that project revenues could pay for a portion of the operations and maintenance associated with Phases 2a through Phase 3. The operations and maintenance costs will be driven in large part by the scope and design of these phases and cannot be fully estimated at this time. Detailed pro formas are recommended during design development of each future phase to estimate revenues and expenses and allocate each to the entity best suited to address the requirements.

### 7.2.1 Operating Costs

Operations and maintenance costs for the Phase 1a and 1b improvements have been estimated at approximately \$100,000 annually (base cost, before escalation). Operations and maintenance costs would not be incurred until 2022 or completion of Phase 1a and 1b construction.

### 7.2.2 Operating Revenues

Operating revenues have yet to be formally identified. However, based on other station precedents, the following revenue sources could be options to fund operating and maintenance needs:

- Retail Rents in the Station Building: if the station building includes leased commercial spaces, the revenue generated by the leases can contribute to a portion of operating costs for the building maintenance.
- Advertising within the station: advertising revenues are typically an additional source of operating revenues for transportation systems.
- A user fee/surcharge paid by ticketed passengers (similar to airport facility fees): this fee would apply to Amtrak tickets for passengers departing/arriving to the station.
- Paid parking revenue from future adjacent parking
- Naming rights: the Charlotte Gateway Station could benefit from a corporate sponsor that would pay a yearly fee in exchange of the advertising provided by the naming of the building.

## 7.3 Summary

Based on current assumptions, the cost to design and construct Phases 1a and 1b are fully funded. A funding and/or a financing solution must be identified for a portion of Phase 2a, as well as possibly for elements of Phase 3, depending on the nature of the joint development agreement.